CHILE

L·E·ELLIOTT

For Basil.
Christmas 1922.

This book may not be a good one but I fancy that the subject is full of interest to you.

Ackie R——

CHILE
TODAY AND TOMORROW

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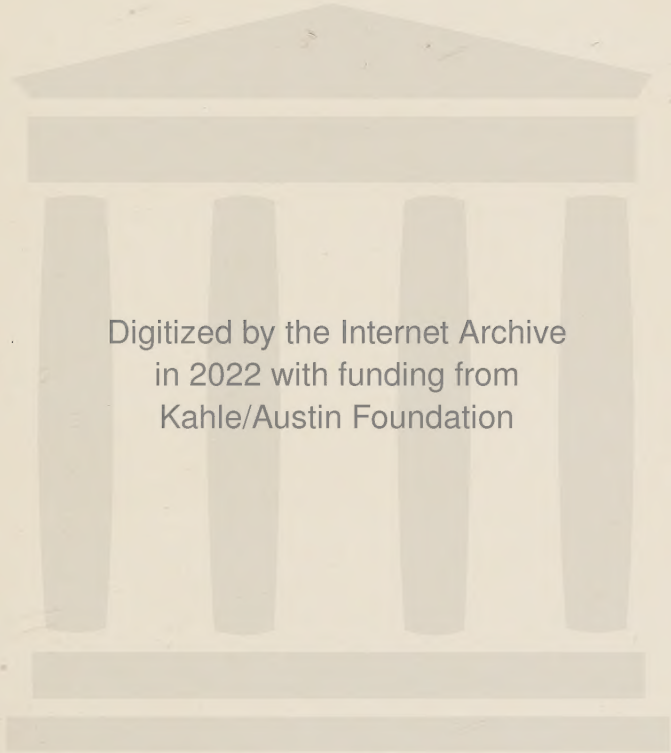
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Lake Llanquihue, South Chile.

CHILE
TODAY AND TOMORROW

BY

L. E. ELLIOTT

AUTHOR OF "BRAZIL: TODAY AND TOMORROW,"
"BLACK GOLD," ETC.

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CHILE

TODAY AND TOMORROW

CHAPTER I

Physical Characteristics. — North, South, and Central Chile. — Brilliant Hues. — Climate. — Wet and Dry Seasons. — Social Problems. — Far-flung Cities. — Formation of Character. — Animals and Plants.

CHILE is a ribbon of a country, an emerald and gold strip stretched between the snow-crowned wall of the Andes and the blue waters of the Pacific.

This ribbon is up-tilted all along its western edge to form the coastal range defending the long central valley. It is lightly creased transversely where, from east to west, streams fed with snow-water drain down from the Andean peaks. Below the fortieth degree of south latitude the ribbon is twisted and ragged, with the tilted edge half sunk in stormy waters. Thirty times as long as it is wide, Chilean territory runs from the seventeenth to the fifty-sixth degree of south latitude, for, with a Pacific coast measuring nearly three thousand miles the average breadth is no more than ninety. It is a land of extreme contrasts; of great violence, of great serenity: but whether harsh or smiling, Chile is a stimulating, a promising land holding the mind and the heart. It is a breeder of men and women of forcible character.

To the north lie the tawny and burning deserts where not so much as a blade of grass grows without artificial

help, where no rain falls, year after year, where every form of life is an alien thing. In the south are broken, rocky islands and inlets, matted forests of evergreen trees with their feet in eternal swamps, of furious gales and cruel seas, where turquoise glaciers creep into the dark fiords. Eastward stands the great barrier of the Andes, snow-covered for half the year, with proud peaks rising at least eight thousand feet higher than the head of Mont Blanc. To the west, Chile looks out upon a waste of waters, with New Zealand as the nearest great country.

Shut in or defended by these barriers from each point of the compass, it is plain that Chile has had no sisters closely pressing upon her threshold. One might reasonably expect to find here a race possessing characteristics in common with island folk, a homogeneous people with a distinct nationality. Today, when all natural barriers have been overthrown by mechanical transport, no nation escapes exterior influence, but the Chilean does certainly retain the islander's self-contained habit, physical hardihood, and power of assimilating rather than yielding to aliens. I do not think that the modern Chilean owes his traits so much to inheritance from the Araucanian as to the fact that he has been nurtured in the same cradle, for, without doubt, here is a personality and attitude of mind that distinguishes the man of Chile from his continental brothers.

Between the forbidding lands of the extreme north and far south and the frontiers of mountain and sea, lies fertile Chile — fruitful, gentle, brisk, well-watered. Nitrate and copper have their great populated camps, but they are artificial towns; the Magellanic city of Punta Arenas has a firmer root, but both north and south are new, and have received rather than produced. The Central Valley of Chile is the great garden of South

America, one of the most enchantingly lovely, the most frankly friendly, regions in all the world.

It seems as though nature had deliberately tried to compensate here for the arid and the stormy end of the belt by showering beauty upon the intervening strip. There is none of that strange illusory quality, the sense of living in a mirage, that attends upon tropical regions. Central Chile is fresh, dewy-bright, with the familiar sweetness of the temperate zones of western Europe. Here are fine cattle, sheep and horses, pleasant orchards of pears and plums and apples; olive groves and grapevines; the long green lines of wheat fields, the spires of the poplars, the blackberry hedges edged with gorse and bracken and purple-headed thistles, are all familiar. The stock of the farms, every kind of crop — except those invaluable American contributions to the world's list of foods, maize and potatoes — were introduced from overseas, but they have long been absorbed into the economic life of Chile. If the visitor is lulled into forgetfulness of his real milieu by the sight of neat wooden fences, by the bramble-bordered and fern-edged lane, he is recalled by the sudden glimpse of a shining white cone suspended in the transparent air, the snowy head of a far volcano. Or he may see in the thicket beside the road a trail of copihue with its bright rosy bell, or note that the farmer, ruddy-cheeked and bright-eyed, riding a fine horse along a deep muddy road, wears a gay poncho and a pair of enormous silver spurs.

It is the Chilean south that has brought to the Pacific Coast its fame as a land of beautiful pictures. Before Puerto Montt is reached, the edge of Lake Llanquihue is skirted by the railway, and the sight of this splendid sheet of water is an introduction to the wild and lovely scenery that was still unknown fifty

years ago. The mountain and lake regions of Chile have even yet not been thoroughly explored, and that so much of this magnificent territory has been charted is partly due to the ancient uncertainty of exact boundary limits with Argentina, and, after long negotiations, the surveying work of Holdich at the head of the commission of 1898, reporting to King Edward VII as arbitrator. Between Chile and Argentina lies a series of exquisite lakes, many lying in old volcano cups. There is no more lovely body of fresh water in the world than Todos los Santos, with emerald heights rising clear from the mirror of the water; Rupanco, Riñihue, Ranco, and Viedma are beads upon a splendid chain of fine waters.

Chile is a land of brilliant hues. The dark waters, shouldered by tree-clothed mountains, of the Strait of Magellan, reflect yellow and russet leaf-changes as bright as in the maple woods of Canada. Blue glaciers, pure snow heads and the delicate green of fern brakes are contrasted with the crimson of wild fuchsias and the mass of glorious bloom of apple and cherry orchards. Farther north, where poplars stand like tall flames against the background of the hills in the Chilean autumn, and the willows line the rivers with gold, all is soft and glowing; but beyond the northern limits of vegetation where nothing meets the eye but masses of orange mountains that seem like glowing draperies hung against the unchanging blue sky, there is an extraordinary clarity of line and tint.

When the sun descends, quick flushes of pink and yellow, sheets of pale green and violet, flood the burning desert and the deeply scored heights; there is no movement, no sound, and yet the wide scene appears instinct with life, to move beneath the waves of pure light.

Lake Todos los Santos.

Every smallest thread of water is here edged with a lush growth of bright emerald plants, every bush is a mass of orange or purple flowers. And in the settled spots there is grace in every tree, a picturesque quality in each little thatched hut by the wayside, an insouciance that lends charm to 'dobe walls and maize patches. The beauty and the kindliness of Chile are, in fact, apt to destroy one's critical faculties.

The weather in Chile may be called extremely obvious. It is impossible to ignore it, as in some other countries, despite the situation of the greater part of Chilean territory within the temperate zone. The remarkable topographical conditions of this strip force each barometrical change upon the attention.

In the rainless north, modifications are chiefly confined to the effects of the curious sea-mist, the *camanchaca*, spreading over some parts of the pampas to fifty miles inland; appearing about six in the evening, these fogs screen the coast and promptly lower the temperature, so that, scorching at mid-day, one shivers under blankets at night. In the extreme south, among the islands and channels of the Magellanic region, boisterous seas and violent winds, cold and rain, made it the terror of sailors for three hundred years. The prevailing weather displays traits almost as unvarying as in the sharply contrasted north. Fine and calm days are rarities, although the climate is certainly not unhealthy, as Punta Arenas demonstrates.

But it is in the central region lying between Coquimbo and Valdivia that changes of weather have the most spectacular effect. In the valleys of the Aconcagua, the Mapocho, the Maule and the Bio-Bio we have perhaps the most striking results when the rainy season begins, usually towards the end of April. In the

lowlands a blinding deluge descends that promptly clears town streets of pedestrians and frequently reduces cabs and street cars to temporary inactivity, while every country path and highway is transformed by a few hours' rain into a deep morass. But whenever it rains in the central Chilean valleys snow is falling upon the Andean heights, and presently the eyes that for months have glanced with the indifference of custom at the far-distant, blue-shrouded, tawny mountains are astonished with a vision of giant peaks and shoulders that seem to have made an immense stride forward to the edge of the next field, their serene magnificence covered with shining white.

The effect upon the foothills is no less striking. During the last months of the dry season — enduring in the vineyard regions for some eight months — every inch of ground that is not artificially irrigated has taken on a uniform sandy hue. The whole earth is parched and the roads are a foot deep in dust. But within a week of the first rain a shimmering veil of light green tinges the land; in ten days every knoll and hillside has its carpet of young grass, and in a month the whole face of the country is changed, awakened, brilliant, bursting out with sturdy fertility. Such rivers as the Aconcagua and the Mapocho, dwindled to rippling threads among the wide stone-strewn beds, are changed in a night to raging torrents, fed from the sides of the mountains. More than once these silver streams have swept from their shallow banks, torn down protecting barriers, and done serious material damage, besides changing their courses — a matter of great import in regions where water-rights are the chief causes of quarrel among farmers.

With the setting in of the definite dry season at the beginning of September, the upper part of Central

Balmaceda Glacier.

Chile thenceforth forgets the sound of rain for over half a year. Bright blue skies and unrelenting midday heat are almost unchanged; the watered country is a series of orchards, and the famous big black grapes, the peaches and plums and apples of Central Chile, succeed the strawberry crops. Chile in the early part of the dry season is a garden of flowers, and the fruit-ripening at the end of the year fills the valleys with busy scenes. There are thousands of workers in the orchards, grain fields and vineyards, and the heavy-wheeled ox-carts send up swirling masses of dust in every lane. Before the New Year the snow has melted under the summer sun from almost every part of the Cordilleras, although I have seen it linger in deep folds of Aconcagua and Tupungato until late February. Down south in Magellanic territory the permanent snow line comes down to a couple of thousand feet above sea level, and cold weather is the rule. The squalls of the Strait are generally rain-laden.

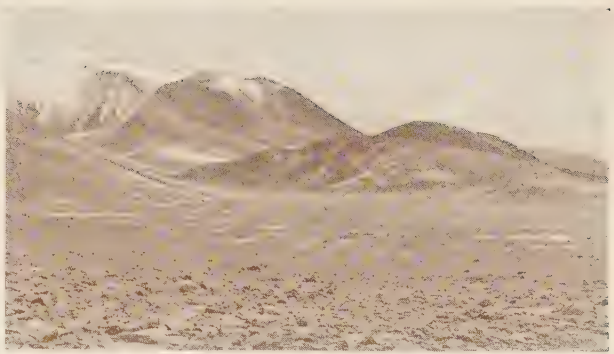
Aconcagua, highest peak of South America, is not actually a Chilean mountain, lying just across the Argentine frontier; but it is so familiar a feature of Central Chile that it is constantly annexed in thought. Mercedario, another magnificent height, also just escapes the boundary line. Beautiful Tupungato, 21,300 ft., is outclassed among Chilean peaks, as regards altitude, by Tocorpuri and Llullaico farther north, and is closely rivalled by a number of less famous mountains — Socompa, Baya, San Pedro and San Pablo, Peña Blanco, San Francisco, Muerto, Solo, Salado, Tres Cruces and Toro; below Central Chile the average height of the crests of the great volcanic wall drops from fifteen to nine thousand feet, but even such comparatively modest peaks as Osorno, Llaima, Calbuco, Lonquimay, Villa Rica, and the most southerly Paine,

Burney, Balmaceda and Sarmiento, are striking and dignified with their snow crowns.

The long dry season of Mid Chile, and the violence of rains in the wet months, render the construction of permanent roads a task necessitating immense outlay. Chile has 35,000 kilometres of highroads, but reckons only a few thousand kilometres in first-class condition: a recent Road Law aims at a reform of vital importance to the Chilean farmer. But if roads are scarce, Chile has an excellent system of railways, serving the main length of her territory, connecting with all exporting points along the coast, and linking Valparaiso to Buenos Aires. The adequate equipment of ports — of which there are sixty, important or embryo — has always presented difficulties, owing to the shallow character of almost every indentation, with the notable exception of Talcahuano, and the prevalence of heavy ground swells and strong gales from the north and the southwest.

The social problems of Chile are no more and no less than the problems of any other country of the temperate zone inhabited by a progressive white population. The difficulties of adequate transport to serve her growing industrial and farming regions; questions regarding a large working population crowded into great mining camps; political and educational problems, are all hers: but she is aided towards solution by the homogeneity of her hardy race.

Chile has no "black" or "yellow" population. There are in the country only four African Negroes, and the foreigners resident are mainly Western Europeans and the nationals of sister states. Peruvians, prior to the friction of 1920, formed 20 per cent of the foreign population; Bolivians number 22,000 or 16 per cent; there are 20,000 Spaniards, about 13 per cent; Ger-



Volcano San Pablo, on the Bolivian Border of Chile.
Desert in Atacama Province.

In Northern Antofagasta Province.
The River Loa in the Dry Season.

mans, 11,000, or 8 per cent; French, 10,000; British, 10,000; Italians, 13,000; Swiss, 2000; North Americans, 1000; Chinese, 2000; Argentines, 7000.

The various foreign elements are lost among Chile's four million native-born, and the majority of all newcomers remain in the country and are presently added to the Chilean stock. There has never been, fortunately for the country, any influx of unassimilable races; and while there is plenty of room for a large population, increase is more certain when it is from the inside rather than superimposed.

Chile has, in fact, enjoyed all the advantages of being known as a poor country for many generations; there have been no periods of delirious boom or extravagance, she has been comparatively little exploited, owes comparatively little to the outside world, and has developed her soul with a certain leisure.

Politically, she has been equally lucky. Most of her rulers have been wise and cultivated men of high probity. The unhappy Balmaceda, against whom was fomented the solitary revolt in Chile since she settled down to work after Independence, bears a name that is today revered throughout the country, with no accusation affecting his integrity. No Governor or President of Chile has been assassinated during the whole history of the country, before or since the close of the Spanish colonial régime.

The genuine exercise of the vote, and the temperamental cheerfulness and sanity of the Chilean, have saved the country from many miseries suffered by less unified lands.

Two special causes of the general level-headedness and sobriety of the Chilean are, first, the strong position of women in family life, and next the high standard of education. Education provides a channel through

which youth can flow, and here, where state elementary schools are spread throughout the country to the number of 3000, with 1000 private and secondary schools, every boy and girl has a chance. The Chilean Government has long followed a policy of sending a number of the brightest students of the high schools and universities abroad for final courses in languages and science, and for this reason is less dependent than the majority of young countries upon the exterior world for engineers, chemists and teachers.

The fine prosperous cities of Chile possess, of course, all the equipment, all the luxury and grace, of modern cities all over the world. If one were to shut out the background of snow-crowned mountains, and happened to be out of sight of such streets as retain Spanish balconies and tiled roofs, one might imagine many a district of Santiago to be a part of a first-class French or English city. The tramways, the common use of motor-cars and electricity, the good paving and good shops, the beauty and fashion of the Chilean women, the beautifully built and equipped houses, the good restaurants, the plentiful supply of newspapers, the appearance and avocations of the people, render Valparaiso and the Chilean capital among the front-rank cities of the world.

But Chilean cities vary greatly. In the central region is the great group of centres of Spanish foundation, those of the extreme north showing faces, for the most part, as youthful as those of Western Patagonia or Punta Arenas on the Strait of Magellan. Temuco, built after the final breaking-down of the Araucanian frontier, dates as a modern town only from 1881. Old Tarata, in the still disputed Province of Tacna, dreaming with its back to the hills and face to the desert, is

In the Strait of Magellan.

a link with the past, for although it is away from the traffic stream today it was once a stopping-place on the direct Inca route between Potosi and Arica on the Pacific; Tacna owes its modern existence to its little railway; but Arica is newly alive, a busy port in a bower of gay flowers, a garden on the edge of a waste.

South of Arica lies a fringe of new nitrate towns along the sea-border of the *pampas salitreras;* Pisagua, Junin, Iquique (not long ago the greatest exporter of nitrate, but yielding pride of place to Antofagasta), Caleta Buena, Tocopilla, Mejillones, also overshadowed today by her younger sister, big, well-served, thriving Antofagasta; Coloso, Paposo, Taltal — all lie baking in the bright aridity of the rainless belt, precariously supplied with food and water from afar. Inland there are no populations more permanent than those of the nitrate *oficinas*, save here and there along the beds of snow-fed streams. Next in order from north to south comes the string of copper ports, with interior towns beginning to appear as the edge of the permanently fertile lands is reached. Chañaral, Caldera, Carrizal, points where the famous "Chile bars" of copper were smelted and shipped overseas; inland Copiapó, dependent for wealth upon copper and silver mines, but clothed with all the charm of a clover-edged oasis in the desert; the houses are built low for fear of earthquakes, roofed with red tiles and washed pink and blue; the gardens are full of scented flowers. Another oasis is Vallenar, set in the Atacama desert beside its violet-shadowed ravine and surrounded with a little ring of jade fields.

Still farther south, Coquimbo, a newer, busy little city, sweetly placed upon its beautiful curving bay a mile or two from its Spanish-built, slumbering elder sister La Serena. From this point southward the

towns lie closer together, and eastward along each fertile valley are clusters of fine fruit farms with dependent villages, filling the railway cars with figs and peaches, grapes and apricots; but where water fails, scrub and cactus deny a living. Here is old Combarbala, there Illapel with its town-long avenue of orange trees hung with golden globes; Santa Rosa de los Andes, high-road to the chief mountain crossing; and a number of centres of the lovely grape country, younger sisters of San Felipe. Santiago, spread beneath her two famous hills, Santa Lucia and San Cristobal; Valparaiso, risen from the earthquake of 1906, solidly built on its narrow stretch of sand beneath the thousand-foot cliffs, crowned with new dwellings and reached by electric lifts, an energetic and wealthy port with its brilliant suburb, Viña del Mar. Beyond these great twin centres of movement lies all the fast-developing agricultural and manufacturing south—Talca, a rapid and promising growth; dusty Rancagua, looking towards the big interior copper camp; Chillán, head of a great fruit region; Concepción, most agreeable of cities, nestled beside the bright Bio-Bio in a bower of woods, with its fine port, Talcahuano; the coal-mining sea-border towns, Coronel, Lota, Arauco, Lebu; Temuco, one of the most prosperous of all the vigorous young southern towns, placed in wonderfully productive country; handsome Valdivia, facing a factory-covered island on the fine river flowing to Corral port, justly proud of its equipment and buildings; Osorno, a rising centre of industry; Puerto Montt, still in its youth but with good reasons for sturdy growth. And last of all, Punta Arenas, the visibly growing city, fine buildings shouldering little shacks, looking away from the beech-covered hills of Brunswick Peninsula towards the pearly distance of the Polar seas; Punta

Santa Lucia Hill, Santiago.
Parque Forestal, Santiago.
Municipal Offices, Santiago.

Arenas is not only a new city of Yugo-Slav and Scots millionaires, of the tributary sheep-raising country: it is the commercial key of Chile's Far South.

The majority of these towns are more than convenient centres for crowding populations; they owe their existence to special and widely divergent causes that have also formed the character of the people. To certain circumstances in Chilean history can be ascribed a powerful part in making the Chilean — the disappearance of the Indian as a worker, and consequent self-dependence; the great rise of the nitrate industry, and the creation of national wealth and great private fortunes; and the enlargement of the national horizon by war. But the effect of different regions and their calls upon resources have been and are still equally important. Much of the spirit of the Chilean is due to the independent life of the mineral-hunter of the north, solitary, even-tempered, enduring, deeply attached to the soil. The day of this class of miner has departed almost as definitely as that of the cunning craftsmen who, in colonial days, fashioned in copper or silver all domestic utensils of Chilean homes: but his influence lives. Marked also is the influence of the skilled horseman, the woodsman, the man of the camp who knows how to kill and cook his food, how to cross mountain passes or trackless forest or unbridged stream; the far-flung Chilean cities bear the stamp of the Chilean character created by these special circumstances, and generalisations must be made and received with this fact in mind.

The Santiaguino, occupied in finance, law, politics or trade, is addicted to cheery club life, is a country and garden lover, and has a keen understanding and affection for horses; his characteristics bring him readily into sympathetic touch with the British, allied by

many blood-ties. He is famed as a charming host, a genial welcomer of the stranger, and there is no city in the world where the visitor will be more agreeably interviewed by an acute press, more quickly and spontaneously greeted and made at home than by the frank and kindly Chilean family.

The dweller in Santiago and Valparaiso possesses a marked characteristic rare in any part of Latin America: he is a born speculator and financier, and is an active attendant and operator upon the local Bolsa (Stock Exchange). In some of the smaller and less developed states of Spanish America the Stock Exchange is non-existent or negligible: but in Chile the Bolsa is thronged daily, and the operations are active, eager, and dictated by a highly intelligent appreciation of the market conditions of the world. The cables are incessantly used in this connection, and many a Chilean fortune has been made and lost by the follower of exchange fluctuations. The Chilean understands and is accustomed to investment, and is not alarmed as are many American nations at the prospect of investing his money abroad. He has gone afield for a century, and, operating in Antofagasta and Tarapacá long before they were Chilean *de facto*, has since their acquisition ranged farther into the mining districts of central Bolivia. Chilean capital and technical skill are responsible for half the mines operated in that sister state. Operations in Bolivian mining shares — such as the famous and spectacular Llallaguas — form a considerable item in the work of the Chilean Bolsa.

Behind the bright social life of the Chilean cities lie the great farming and mining areas, with their dependence upon that hardy Chilean worker nicknamed the *roto* — originally, the "out at elbows" class. Today the term has lost its depreciatory meaning, and the

workman in general is a *roto*. He has fine qualities of hardihood, loyalty and endurance; and although he has sometimes had a repute for free use of the *corvo*, the deadly curved knife in whose use he has an extraordinary facility, it is only upon too-festive occasions or during jealous quarrels that he is apt to give way to passion. The measures taken by the Government and by large employers of workmen in industries or mines to stop the traffic in the worst forms of liquor, and to substitute the light and innocuous Chilean wines, has lessened these troubles during recent years, and it is true of Chile as of most parts of South America that there is no organised crime. Cases of theft are common, but are ascribed mainly to the lower class of South European who comes to Chile for work and forms a part of the shifting population moving from camp to camp. Chile's *Ley de Residencia*, by which criminals are deported from the scene of discovered ill-deeds to another part of the coast, means very often that the north and south exchange ne'er-do-wells.

It is partly due to this perhaps too kindly system that Chile has suffered considerably from strikes during the past few years. The entry of malcontents bringing the flag and doctrines of the I. W. W. created trouble in the coal mines of the south, the copper camps and the nitrate fields of the north, and the ingenuous character of the native-born lends itself to the ready acceptance of specious theories. I have seen the flag of the Californian-bred Industrial Workers of the World paraded in Santiago, while such "red" periodicals as *El Socialista* of Antofagasta spread a hash-up of violent and hysterical propaganda, a medley of Marxian and Bolshevik ideas, amongst railway and port workmen. The women, always an element to be reckoned with in Chile, were brought into the Antofagasta railway strike

in 1919, and when the first strike-breaking train was run out of the port, the wives of the strikers laid themselves down on the tracks in a theatrical attempt obviously instigated by the practised foreign agitator.

The radical administration of Señor Arturo Alessandri, with its avowed sympathy with the workers, was able to counteract the pernicious influence of the exterior trouble-maker as, perhaps, a more conservative government could not; and the firmness with which, in late 1921, the President dealt with an attempted tie-up of Valparaiso port, declaring his intention of redressing any genuine grievances but at the same time making clear his determination that the work of the port should not be interfered with, has been salutary. The powerful Workman's Federation (Federación de Obreros) of Chile has done much good work, and is likely to do more if it is purged of foreign interference and retains the sympathies of the middle class Chilean.

The best cure for red socialism in South America is the pleasant tonic sport. No better sign of the real healthfulness of the Chilean race is to be found than the enthusiasm with which football, cricket and the recent introduction of American baseball have been.taken up. All Chilean newspapers have their page of *Deportes*, with much space devoted to *futbolismo*, and the horse races at Viña del Mar and Santiago are eagerly attended by the peasant as well as by the Chilean millionaire.

Such sports as river fishing and boating are denied to the dweller in north, and most of central Chile, by the scarcity of streams, but there are plenty of coarse, if few sporting, fish in all rivers of constant flow. To the south, trout and salmon have been introduced with marked success and the angler's art has developed.

Bull-fighting was never a Chilean pastime; a fine breed of game-cocks was introduced about the middle of last century (through the gifts of the celebrated Lord Derby, who responded to the petition of a sporting Chilean priest) and has had a marked effect upon country strains, but in its most popular day cock-fighting was never to Chile what it is to Cuba. The whole national tendency is towards out-of-door games and sport: the Chilean is a wonderful rider, has bred an extremely fine type of small horses, is a good polo player, and owes much of his sturdy health to the national habit of horsemanship.

Chile has no noxious insects, with the exception of one venomous spider; and she has no poisonous snakes or reptiles. But she is rich in strange and beautiful birds, many singing with exquisite sweetness.

Large animals indigenous to the country are rare, although all European domesticated animals, as horses, cattle, hogs and sheep, thrive splendidly; a few forest deer are still found; the guanaco lives in the more remote uplands and cold south, and there are jaguars in the woodland.

Among plants, Chile's special gift to the world has been the potato, invaluable to millions of households today. Different varieties of *Solanum tuberosum* are found wild on the West Coast of South America all the way from South Chile to Colombia, growing in Chile from Magallanes to Arica, both near the seashore and in the foothills of the Andes. The potato has a wide native habitat, and it was and is as useful to the indigenous folk of Chile, Bolivia and Peru as to Western Europe today. Of other foods, the mealy, chestnut-like kernel of the *Araucaria Chiliensis* is eaten only in the country, as in the case of its cousin, the kernel of

Araucaria Brasilensis. The strawberry, *Fragaria Chiloensis*, appears to be wild in south Chile, with a number of small sweet berries of the myrtle and berberis tribes.

Quantities of beautiful flowers and plants, herbs and shrubs, are native to Chile and found wild only in this belt. Of them, none is more striking and lovely than the *Copihue*, the rosy bell of a slim vine clinging to trees in the southern woodland; the flaming *Tropœolum speciosa* is a bright mantle of the hedgerows, the brilliant blue crocus (*Tecophilea*) lies in sheets on Andean foothills, the turquoise and golden *Puyas* are striking features of many a Chilean landscape, and the lovely *Eucryphias* are shrubs as beautiful as the Fire Bush (*Embothrium coccineum*).

But of all Chilean offerings, none has been of more importance to the world, apart from the potato, than that strange naturally produced chemical of the northern rainless regions, nitrate of soda. Nitrate has brought millions of exhausted or semi-productive acres into rich fertility, employs a hundred thousand people in its production and transport, and is today a necessity of the farmer. Artificial production is unlikely to rival the natural deposits in the markets of the world, owing to the cost of manufacture, and the Chilean fields, immense and practically inexhaustible, form a natural treasure of prime industrial importance. Other nations besides Chile are fortunate in possessing copper, coal, iron and silver: in the possession of nitrate the West Coast is without a competitor.

The only cloud upon the Chilean political horizon, remaining since the War of the Pacific, is the problem of the two provinces now combined as Tacna, with the city of Tacna as capital. That the future of this little

Viña del Mar, Valparaiso's Residential Suburb.

Race Course, Viña del Mar.

Valparaiso Street, Viña del Mar.

Mira-Mar Beach, Viña del Mar.

region troubles the West Coast is a striking illustration of the result of leaving territorial questions unsettled, for no equal shadow is cast by the provinces definitely added to Chilean soil, the valuable Tarapacá and Antofagasta.

Not only Chile and Peru are involved in the Tacna dispute: the question of renewed access to the sea by Bolivia lends that country a lively interest in settlement, and, in addition, every South American country is concerned in the amicable resolution of a domestic problem affecting the present credit and future peace of the continent. Nor can the nationals of overseas countries investing in or trading with the West Coast remain indifferent; when, in 1922, discussions were opened in Washington between the representatives of Chile and Peru, all friends of South America hoped for a happy result from these new and direct conversations, in a region far removed from the acute feeling of the Pacific Coast.

The whole story of the Tacna question is discussed in detail in other pages.[1]

[1] Chapter VI.

CHAPTER II

CHILEAN HISTORY

Inca Rule and Native Chiefs. — Spanish Colonial Period. — The Fight for Independence. — Republican Chile.

Neither in her deep woodlands nor upon her open plains does Chile possess monuments of ancient civilisation. The foundations of her flourishing cities date back no farther than 400 years at the most; the arts and crafts of daily life are based upon imported concepts, owning no native origin. As a settled, built, cultivated country, Chile is for the main part genuinely new.

The old races of the south, whether nomad hunters of the interior or fisherfolk of the coast and Magellanic waterways, built no towns, constructed and carved nothing that serves today as a memorial; bones hidden in caves, chipped spear and arrow heads, harpoons and fish-hooks, remain as the only evidence of the life of past generations, the only witnesses by which the condition of their present descendants can be measured. Farther north, where Inca culture penetrated, are such ruins of dwellings as those of Calama, with their burial sites. Traces of the Inca highways are yet to be found as far south as the Atacama desert and Copiapó. But in contrast with the archæological wealth of Bolivia and Peru, of Central America and Mexico, Chile has not a single pre-Spanish temple nor the rudest monolith to show. The north and central valley of Chile as far as the present Talca were under Inca control for about

one hundred years before the Spanish conquest, Peruvian records yielding the only historical accounts of events in Chile prior to Almagro's expedition.

A friendly connection between the Peruvian empire and the settled tribes of the Chilean north seems to have been of old standing, a tradition confirmed by the evidence of burial grounds. Upon the authority of the historian Montesinos, the Inca Yahuar Huaccac gave a daughter and a niece in marriage to two chiefs of Chile; these two princesses came later, with their children, to visit Peru, their uncle Viracocha being then Inca. A revolt took place during their absence, and the family was only reinstated by the might of the Inca, and under his tutelage. It was, however, the Inca Pachacuti who began the definite explorations and conquests that, continued by his son Tupac Yupanqui and his grandson Huayna Ccapac, increased the Inca dominion to a great empire extending from the Ancasmayu River, north of Quito, to the banks of the Maule in Chile.

Tupac Yupanqui (1439–75) conquered the Antis,[1] people of the Collao, and from Charcas decided to go farther south. He entered Chile, defeated the powerful Sinchi (chieftain) Michimalongo and later Tangalongo, the latter ruling country down to the Maule. Here the same fierce tribes who afterwards resisted the finest Spanish troops opposed him, and after setting up frontier columns, or walls, as a mark of conquest on the river banks, the Inca returned to Cuzco via Coquimbo. From this time Chile was officially organised. Quechua-speaking colonists (*mitimaes*) were sent here as throughout all the rest of the thousand leagues of Inca territory, registering the population and imposing tributes of

[1] From which name the word Andes, in whose lower folds the Antis dwelt, was probably derived.

country produce. Curacas were instituted as tribal leaders in lieu of the Sinchis, who were in old Chile obeyed only in wartime. Extension of this definite organisation was energetically carried on by the great Inca, Huayna Ccapac, and it was during this period that the Peruvians constructed the great roads that so astonished, and aided, the Spaniards. The effective transport system and the success of the Inca rulers in pacifying districts by the simple method of transporting the original population where disaffection was suspected, replacing them with settlers from a distance, the whole meticulous paternalism of the Inca system, regulating every part of the social frame from the cradle to the grave so thoroughly that initiative was stifled, rendered easy the task of the invading European. He did no more than step into Inca shoes, and the Inca's subjects received the change of masters almost with apathy.

That careful observer Cieza de Leon, in Peru from 1532–50, leaves a precise account of the Inca roads that ran south from Cuzco both along the sierras and also throughout the coastal border. The highways were made, he says, fifteen feet wide in the valleys, with a strong wall on either side, the whole space being paved with cement and shaded with trees. "These trees, in many places, spread their branches, laden with fruit, over the road and many birds fluttered among the leaves." Resthouses containing provisions for the Inca officials and troops were built at regular intervals, and it was strictly forbidden that Peruvians should interfere with the property of natives in nearby fields or houses.

In deserts where the sand drifted high, and paving was useless, huge posts were driven in to mark the way. Zarate, who gives the width of the roads as 40 feet,

says that "broad embankments were made on either side," and all early travellers in Inca territory agree that these lost highways were extremely well made. He adds that the posts in the desert were connected with stout cords, but that even in his day the Spaniards had destroyed many of the posts, using them for making fires. The road of the coast, like that of the sierra, was 1500 miles long; and of Chilean traces any traveller through the Atacama copper regions may see a survival at the station of "Camino del Inca," where the modern railway cuts across the ancient road.

Along the Sierra highway came, in 1535, the first Spaniard to set foot in Chile, Diego de Almagro. He was not the first European to explore Chilean territory, for the Portuguese Fernão de Magalhães had discovered the Strait bearing his name in 1520; but he was the pioneer explorer by land. The name Chile is a native word which was probably the appellation of a (pre-Spanish) local chief; it was the name by which the Incas designated that part of the country under their control, and it persisted in spite of Valdivia's later attempt to call it "Nueva Estramadura," just as "Mejico" and "Cuba" survived and "Nueva España" and "Española" faded out. It has been frequently but mistakenly said that the word Chile actually does mean "chilly" in the Quechua tongue; as a matter of fact the Quechua word meaning "cold" is *chiri*. In early Spanish times the name Chile applied only to part of the central valley with "Copayapu" in the extreme north, "Coquimpu" just below it, and the central region partly ascribed to "Canconicagua." But the name Chile was simple and was so quickly adopted that Almagro's adherents were soon politically grouped as "los de Chile" — the men of Chile, and when the country was definitely colonised the name was extended

to denote all the settled country south of Peru, that is, between Copiapó and Chiloé Island.

The original spur to conquest of Chile was rivalry between the Pizarro brothers and their fellow conquistador, the old Adelantado Diego de Almagro. The Pizarros wanted to retain rich Cuzco, and Almagro was an inconvenient claimant; the magnificent city of the Incas, today a grievous sight with its shabby modern buildings superimposed upon the stately stone walls of the Incas, was already a smashed and looted ruin; but it had yielded so much treasure that it was probably impossible for the conquistadores to give up search for other golden cities. Mexico, Guatemala, Peru, and the Chibcha Kingdom, had followed in rapid succession, and it is not surprising that when Indians spoke of the riches of the south, Almagro, over seventy years old, should be ready to march into Chile. Almagro had a commission from Charles V to conquer and rule over 200 leagues of land south of Francisco Pizarro's territory (New Castille); it was to be called Nueva Toledo. At about the same time, 1534, a grant was given to the ill-fated Alcazaba of 300 leagues of land, commencing at the southern boundary of Almagro's territory, under the name of Nueva Leon.

Almagro set out with over 500 Spaniards and 15,000 Peruvian Indians, after spending 500,000 pesos on equipment. He marched south from Cuzco, crossed the Andes and went by Titicaca Lake, following the Inca route; perhaps as a guide and a means of securing the loyal service of the Peruvians, who would never desert a member of their ruling clan, the Spanish leader took with him an Inca priest and the young Paullu Tupac Yupanqui, son of the Huayna Ccapac and brother of the Inca Manco. The latter had been crowned in

Cuzco in early 1534 by Pizarro, probably with the double object of quieting Peru and to obviate charges made by his personal enemies in Spain. Both Charles V and the Pope emphasised their possession of tender consciences with regard to native American rulers. This young scion of the Incas survived the expedition into Chile, and was with Almagro's son at the battle of Chupas.

Terrible sufferings were experienced by the expedition in the bitterly cold Andes, where deep snow and cruel winds killed the Peruvians by thousands. Many of the Spanish soldiers too were frozen to death, and food supplies failed. When at last they turned west an advance party of horsemen went ahead to bring food, cheerfully yielded by the settled natives, to their starving and exhausted comrades. Arriving in the green Copiapó valley, Almagro was well received at first, but pressing his search for gold to extremes, quarrels arose, the natives were "punished," and Almagro moved on, after receiving reinforcements brought by Orgoñez. A strong party was sent forward to report on southerly conditions, and marched as far as the Rio Claro (tributary of the Maule) where savage Indians confronted the outposts of the old Inca empire. When Almagro heard this report, and realised that neither treasures of gold nor rich cities existed, he decided to return to Cuzco, making his way back by the coastal road and traversing the scorching, waterless deserts of Atacama and Tarapacá. At his arrival in Arequipa at the end of 1536 he had lost 10,000 Indians and 156 Spaniards. The rest of Almagro's story — the news of the Peruvian revolt, his seizure of Cuzco, and his execution at the age of seventy-five by Hernando Pizarro, when fortune finally deserted him — belongs to the history of Peru. The fact that a man had made the Chilean journey

with Almagro was considered, later on, as a claim upon royal consideration. The petition of Diego de Pantoja, in 1561, makes this point, while that of Encinas, 1558, is even more emphatic in speaking of the sufferings of the soldiers; he went south, he says, with Captain Gomez de Alvarado, fighting Indians of the "Picones, Pomamaucaes, Maule and Itata" and traversing painfully "snow and water, swamps, creeks, crossing rivers by swimming or on rafts" and with no food but wild herbs. For the moment the efforts of the Europeans were without result; during another two years Chile remained in the hands of her native rulers.

Spanish Colonial Period

There was no actual conquest of Chile by the Spaniards. Those native tribes which had submitted to the Inca régime accepted the Europeans: they who had defied the Inca continued to defy the Spanish.

There were angry outbursts on the part of certain northern and central tribes when the Spaniards returned in force in 1540, but when these had been overcome and peace made, the Indians remained consistently loyal. The "Changos" of the coastal border took up a permanent position as friends just as the Mapuches ("Araucanians") took up a permanent position as enemies. The Spanish settled Chile, organised a social system, built cities and defences, cultivated the ground, brought in blood and culture, created a nation; but South Chile was never a conquered country in the same sense that Mexico and Peru were conquered countries.

The next attempt to plant the Spanish flag in Chile following the abortive expedition of Almagro was well planned and successful. Captain Pedro de Valdivia, thirty-five years old, a campmaster of Hernando

Pizarro, and a man of formed and resolute character, wanted to increase his fortune, consisting of an estate near Cuzco. He obtained without difficulty from Francisco Pizarro a commission to open up Chile, a land of poor repute since the return of Almagro; his appointment was that of Lieutenant Governor. His chief difficulty was in raising men, for as he says in a letter written in 1545 to Charles V, those who turned most from the project were the soldiers who had accompanied Almagro on the first unfortunate journey, when 1,500,000 pesos were spent "with, as the only fruit, the redoubled defiance of the Indians."

He set out at the beginning of 1540, however, with nearly 200 Spaniards and 1000 Peruvian Indians, and avoiding the Andes traversed the coastal deserts, arriving in the valley of the Mapocho at the end of the same year. On the eve of departure a blow to his hopes threatened in the arrival of Sanchez de la Hoz, armed with a royal commission for the settlement of Chile; but Valdivia, equal to the occasion, induced his rival to provide a couple of ships, equip a force with fifty horses, supplies, arms, etc., and agreed to meet him at a small port just north of the Atacama desert. The appointment was kept, but as soon as the new arrival went ashore Valdivia arrested him, made him sign a renunciation of his claims to leadership and henceforth obliged him to serve as a common soldier. Eventually Sanchez de la Hoz joined a conspiracy against Valdivia, was discovered, and was beheaded in Santiago de Chile.

In February, 1541, Valdivia founded Santiago "de Nueva Estremadura," Valdivia naming his province after Estremadura in Spain, where he was born in the town of La Serena. The colony had a hard struggle for existence, the Indians attacking the fortifications of Santa Lucia hill, where the settlers built the first houses

of wood and thatched grass; in the letter mentioned above Valdivia says that the third year of the colony was not so difficult, but that during the first two years they had passed through great necessities. They ate roots, having no meat, and the man who obtained fifty grains of maize each day counted himself fortunate. He says also that they got a little gold, and gives Chile the first praises, so often repeated subsequently, for its enchanting climate. For people who want to settle permanently, there is no better land in the world than Chile, he declares; there is good level land, very healthy and pleasing, and the winter lasts but four months. In summer the climate is delicious, and men are able to walk without danger in the sunshine. The fields give abundant returns, and cattle thrive.

Live stock, in fact, throve so well that within twenty-five years of the settlement the Indians of the south possessed flocks and herds, and, learning from the Europeans, went mounted on horseback into battle.

Needing men and supplies, early in 1543 Valdivia sent six Spaniards by land to Peru. Captured by Copiapó Indians, the Captain Monroy and a soldier named Miranda escaped by an act of treachery against a friendly Indian woman, and arrived safely in Cuzco after a terrible journey through the deserts. But, to cajole Peru into giving help, Valdivia had sent them with stirrups and bits made of gold, a display so successful that by the end of the year sixty new settlers and a ship with stores reached Chile, followed by captains Villagra and Escobar with 300 more men. Valdivia was determined to overcome the south, and set out with 200 men by land while a ship followed along the coast. The Indians rose behind him, burnt his embryo ship-building yard at Concon (mouth of the Aconcagua River), trapped and killed his gold-miners at Quillota,

and besieged the little settlement of Santiago. It was here that Inez Suarez, who had followed Valdivia from Cuzco, rendered her name immortal by her active defence of the fort; tradition says that she cut off with her own hands the heads of six Indian chieftain prisoners and threw them over the palisades to intimidate the attackers. Valdivia returned, from the Maule, where he had received a check, and re-established his colony. He had founded La Serena as a check on the northern Indians and a post on the road to Cuzco, in 1544, but saw that stronger assistance was needed to colonise and hold Chile, and returned to Peru for more help in 1547. The country was in civil war, with Gonzalo Pizarro ranged against Gasca, President of the Audience of Peru. Valdivia adopted the royal appointee's side, was an invaluable aid with his experience of Indian wars, and helped turn the scale, taking the old Pizarro supporter, Carbajal, prisoner. He got his reward when he received formal appointment as Governor of Chile, in 1548. With a large force of well-equipped men he started out anew, was stopped on the Atacama border with orders to return to stand a trial on certain technical charges, was acquitted, set out again, and reached Santiago in April, 1549. He found that the Serena settlement had been destroyed, rebuilt it, and made an agreement of peace with the northern Indians that was never again broken.

With the central and northern colonies secure, Valdivia turned his face south again, prepared a strong expedition and set out in January, 1550. He was checked at the Bio-Bio River, fought for a year in that region, attempting a settlement at Talcahuano, and built a constantly attacked fort at Concepción, where the present Penco stands on a beautiful curve of coast. In February, 1551, he went on, leaving fifty men in

Penco; founded Imperial, leaving forty men in a fort, and in early 1552 reached the banks of the Callacalla River and founded Valdivia City, 1552. His next step was to create a chain of forts — Arauco, on the sea; Villarica, on the edge of Lake Lauquen; Osorno, opposite Chiloé Island some eighty miles inland; Tucapel, Puren, and Angol, "la Ciudad de los Infantes de Chile," between Tucapel and the sea.

The fierce Araucanian Indians determined to destroy every settlement of the invader, and, themselves hardy nomads, were well fitted for the work of continual attack. The leaders Caupolican and the young Lautaro — the latter trained in Spanish ways and speech during some years of service as a groom of Valdivia's — rose up, organised their people, adopting certain Spanish military methods, and began a series of relentless and systematic raids of destruction. Upon both sides, savage cruelties were practised, and from this time began to date the deliberate seizure of white women and children by the Indians. The courage with which many Spanish wives accompanied their husbands did not save them from the huts of the wild natives, and the children borne in course of time of Indian fathers by European mothers were so numerous that certain tribes became noted for their fair skins, pink cheeks and blue eyes.

In 1553, in attempting to stem the tide of Araucanian attacks on the frail forts, of which Tucapel and Arauco had already fallen, Pedro de Valdivia's forces were overwhelmed by Lautaro and the Governor was made prisoner and barbarously executed. He was then fifty-six years of age. His policy in trying to establish settlements in the heart of Araucanian territory was not justified by the necessities of his colonists, who had more land than they could use in the fine central region.

But he was impelled by false stories of gold to be found in the south, by hope of extending the territory under his jurisdiction for the Spanish crown, and no doubt also held the belief, based upon former experiences, that definite submission of the South American natives could be commanded by vigorous action. This idea had been proved correct with regard to all settled districts, but it did not apply to the elusive Mapuches. Nevertheless it was persisted in for a long time, costing a river of Spanish blood and an immense treasure in Spanish gold.

Flushed with success after the death of Valdivia, the Indians attacked all the forts simultaneously; Concepción was twice ruined and restored, in 1554 and 1555, and again smashed when Francisco de Villagra, successor of Valdivia temporarily, was trapped on the seashore after crossing the Bio-Bio and badly defeated. He redeemed his lost prestige when he broke the armies of Lautaro and killed this leader at Santiago soon afterwards, the Araucanians, emboldened, having ranged outside their own territory to attack the invading Europeans.

In 1557 there came to Chile as Governor the young Garcia Hurtado de Mendoza, son of the Marquis de Cañete, Viceroy of Peru. He brought from Spain a well-equipped force of 600 Spaniards, and, arriving at Concepción from the sea, rebuilt the stronghold, mounted guns for the first time, restored all the southerly forts, and in the course of fierce battles in 1558 took prisoner and killed Caupolican.

When Garcia Hurtado left Chile in 1560 the Indians took heart and renewed attacks, and the anxious rule of Quiroga, with another interval of Villagra's control, was concerned almost exclusively with Indian troubles. Quiroga, a determined man, was the first Spaniard to

take possession of Chiloé, founding the town of Castro; he carried war into Araucanian territory relentlessly, shipping every able-bodied Indian he could catch to the mines of Peru. But his experience, and that of his successors, was that the natives were never more than momentarily beaten, that they rose behind him when his troops passed from one region to another, and that almost any fort could be overwhelmed by the extraordinary numbers that the savage chiefs brought into the field. The tactics of the Araucanians upon the battlefield, of attacking in great numbers, but keeping back enormous quantities of men who came forward when the first army was rolled back by Spanish guns, were disheartening; every settlement remained in a constant state of siege, perpetually harassed.

In 1567 Philip II of Spain authorized the establishment of a Royal Audience in Concepción; it endured until 1574, but was then suppressed owing to the insecurity of the colony. A year later the struggling settlements were further discouraged by a terrible earthquake and tidal wave that devastated the coast from Santiago to Valdivia, and in 1579 all western Spanish America was thrown into a state of consternation by the amazing news that Drake had rounded the toe of South America and had begun raiding the Pacific coast.

The enforcement of the "New Laws" — signed by Charles V in 1542, but suspended or ignored by the various Audiences as long as was possible — forbidding Spaniards to make the Indians work against their will, infuriated the colonists of Chile, who saw no other way of cultivating land or operating mines but by driving the natives to these tasks; a few Negroes were sent on from Panama or Buenos Aires, but transportation was expensive and farmers could not afford to import many slaves. Chile never yielded a large quantity of gold;

it was pre-eminently an agricultural and stock-raising country, and therefore a poor one compared with such regions as Peru with its golden treasure or Charcas (Alto Peru) with its tremendous production of silver from the wonderful mines of Potosí. That in the face of all hardships and difficulties the colonisation of Central Chile steadily extended is a standing tribute to the courage of the settlers, as well as to the attractions of an exhilarating climate.

In 1583 came Alonso de Sotomayor, Marques de Villa Hermosa, setting out with Sarmiento and a splendid Spanish fleet of twenty-three ships; the original intention to pass through the Strait of Magellan was abandoned, and Sotomayor with a strong army marched overland from Buenos Aires. He too wasted lives and treasure in attempting to subdue the south, but inevitably the Indians rose behind his forces, burning forts and destroying the guard ships he placed upon the Bio-Bio River. By the time that Martin Garcia Oñez de Loyola succeeded to the Governorship in 1592 the endless wars with the Araucanians had become bitterly unpopular; the Indians had gathered new audacity under the *toqui* (leader in war) Paillamacu, and with him Oñez tried to make a treaty. Hope was also placed in the pacifying influence of Jesuits, who entered in 1593, but these first missionaries were killed, and an armed force sent south in 1598 was wiped out, the Governor Oñez being amongst the slain. Paillamacu, jubilant, besieged all the forts at once, and Spanish rule was further threatened by the appearance in the Pacific of Dutch corsairs. The Cordes expedition of 1600 landed on Chiloé, sacked and held Castro. A Spanish force under Ocampo took back the town, but Spanish prestige suffered by the Indians' realisation of quarrels among white men. Ocampo also raised the siege of

Angol and Imperial, but carried away settlers and abandoned these places. Forts upon the sea border, although safer than inland points, were not impregnable, and the Araucanians had grown so bold that more than once when Spanish vessels visiting the seaports ran aground the Indians swam out, killed the crew and looted the ships in plain view of the settlers.

At the beginning of the seventeenth century, with Ramon as Governor, it was practically decided to restrict Spanish occupation of the territory south of the Bio-Bio River to seaports, and to maintain a line of forts upon the frontier. For about 100 years 2000 Spanish troops were maintained for defensive purposes, chiefly distributed throughout fourteen frontier strongholds, of which the chief were Arauco, Santa Juana, Puren, Los Angeles, Tucapel and Yumbel, and in Concepción and Valdivia. Chilean revenues were insufficient for these army expenses, and Lima contributed 100,000 pesos, for Valparaiso, Concepción and the frontier, half in specie and half in clothes and stores; about 8000 pesos of this sum was used in repairing forts and in giving presents or paying compensation to the Indians. Valdivia, with Osorno and Chiloé, received an additional 70,000 pesos from the royal treasury of Lima, and these points were governed and supplied direct from the viceregal capital.

Determination upon none but defensive fighting was due largely to Jesuit influence in Spain, under Philip II, III and IV; Father Luis de Valdivia in 1612 brought a new band of missionaries, and the south was left to them and their prospective converts. The Audience was restored, in Santiago, in 1609, and the Governor of Chile, while subordinate to the Lima Viceroyalty, was President of the Audience of Santiago as well as Captain-General of the province, his juris-

diction including the territory from the desert of Atacama, where Peru ended, to all the southern country he could control (the Taitao peninsula was explored in 1618) and also the province of Cuyo, extending across the Andes and embracing the city of Mendoza on the post-road to Buenos Aires.

Pirates harassed the authorities in 1616, when Le Maire found the small strait bearing his name; in 1623, when L'Hermite, with thirteen ships and 1600 men, troubled the coasts; and notably by the Dutchman Brouwer in 1644, when Valdivia was seized and three strong forts built by the invaders. The death of Brouwer, three months after his arrival, disheartened the strong force of Dutch under his control; the region was also discovered to be less promising of easy wealth than had been imagined and the place was given up. The Spanish returned in 1645, occupying and completing the excellent fortifications of the Dutch.

A terrible battle with Indians near Chillan ending with the defeat of a new Araucanian leader, Putapichion, with great slaughter, the then Governor of Chile, Francisco de Zuñiga, Marques de Baides, attempted to make a definite peace, holding the celebrated first "Parliament of Quillin" in 1641; the second Parliament of Quillin was held in 1647, with reiterated understanding that the Araucanians were to be recognised as owners of independent territory south of the Bio-Bio, but not to invade territory to the north. A third peace meeting was held in 1650 and thenceforth it became customary for each new Governor of Chile to call a meeting at the Bio-Bio border, where he repaired in state, met thousands of Araucanians, feasted them for several days and gave presents, with mutual compliments and speech-making. None of these friendly conclaves, however, prevented the Spaniards from raid-

ing in Araucanian territory on occasion, or gave pause to Indian chiefs who saw an opportunity. In the middle of the century a disastrous rising of all the Indians, supposedly converted and friendly, took place between the Maule and Bio-Bio Rivers; 400 farms were burnt, Concepción besieged, and enormous quantities of cattle, women and children taken to Araucania.

Nevertheless, outside the troubled zone Chile prospered; the Spanish colony grew from 1700 (with 8600 Indians and 300 Negroes) in 1613 to 30,000 in 1670. Vineyards and olive groves were planted, the wine of Chile becoming so famous that it was shipped all the way to Panama, Mexico and Central America, to Paraguay and Argentina. The Governor Juan Henriquez, a native of Lima, was responsible for much of this agricultural encouragement, and for construction of a bridge over the Mapocho River and of a canal bringing spring water to Santiago. It was this same governor who shipped hundreds of Araucanians as slaves to Peru, and sent to Lima for execution the young Englishmen of Narborough's scientific expedition, treacherously captured at Corral in December, 1670. By this time the coast forts had been rebuilt, partly on account of anxiety regarding the activities of adventuring ships of rival nations, which, forbidden lawful trade, ranged the Pacific as corsairs and smugglers. The famous Captain Bartholomew Sharp, with one ship and 146 men, terrorised the coast in 1680; he sacked Arica and burnt Coquimbo among his exploits. After the day of the pirate Davis, raiding about 1686, it was decided to render the fertile islands off the coast less useful as rendezvous; Mocha was depopulated and an attempt made to kill all the goats that thrived on Juan Fernandez.

Many times during the seventeenth century the Chilean colonies were almost ruined by earthquakes;

the live volcanos of the Andean backbone broke out from time to time, and in many cases the overthrow of dwellings by *temblores* and *terremotos* was accompanied at the unfortunate coastal settlements by furious onslaughts of tidal waves, when numbers of people were drowned. Santiago was badly damaged by the earthquake of 1642, but suffered worse in 1647; ten years later a terrible earthquake and tidal wave destroyed Concepción on its original site where Penco village stands today, and the city was later moved to its present situation on the north of the green-wooded, silver Bio-Bio, with its banks of black volcanic sand.

In 1700 the Spanish were able to regard the danger of active aggression on the part of the Dutch without alarm. Spain had preserved the integrity of her enormous American colonies in the teeth of an array of energetic rivals, sea-adventuring people with vigorous populations lacking space for new settlements, sharing the most jealously guarded regions of South America with but one country, Portugal. For sixty years, indeed, after the tragic death of Sebastião at El Kebir in 1578, Spain held Portugal and Portugal's splendid colonies abroad, including Brazil; until 1640 the Kings of Spain were absolute masters of South America. The long-continued struggle with England and its constant threat to the colonies was one reason why Spain reluctantly made concessions from time to time in her dealings with Holland, a country openly displaying a keen desire to share in American profits. The formation of the Dutch West Indian Company, with comprehensive plans for settlement as well as for trade, received strong government backing, and the forcible occupation of the Brazilian coast region of Pernambuco between 1624 and 1654 caused great anxiety to Spain. Nevertheless, a commercial agreement for the supply

of indispensable Negro slaves, brought from the Portuguese colonies of West Africa, endured until Holland's sea power was definitely affected by reverses at the hands of the English.

A sign of change of influence which had a significant and lasting effect upon the South American Pacific Coast was displayed when early in the eighteenth century Louis XIV of France induced Philip V of Spain to give to French traders the right to supply slaves to the American colonies in place of the Dutch. A certain amount of general commerce could not be denied to vessels bringing slaves, and presently limited agreements were made by which two French companies were allowed to do business with South America. The monopolist companies of Seville and Cadiz, crying ruin, protested vainly, for viceroys and governors as well as settlers found the visits of the French ships convenient and profitable; the corsairs of England too were being transformed by economic circumstances into smugglers whose operations were welcome in many quarters. France did not limit her interest in South America to commerce: we find from about 1705 onwards an increasing number of French scientists and writers visiting the West Coast — as Feuillée, the Jesuit Father and careful botanist, who published the first account of Chilean plant life; and Frezier, the distinguished engineer, who left a descriptive volume of perennial interest. It was this most observant writer who first noted the use of the Quechua word *maté* as applied to the small gourd, often beautifully carved and silver-mounted, from which it was and is usual to drink an infusion of the "herb of Paraguay," in Chile and Peru. Sidelights of great value are also presented by the letters of French Jesuit priests who came to the West Coast about this time, and many of whom, like the

devoted Father Nyel, thought that the supreme reward for a laborious life spent among wild natives was to be killed — "meriting reception of the crown of martyrdom as the worthy recompense of apostolic work." Father Nyel wrote, in 1705, when he was planning the establishment of a mission among the Araucanians, that in spite of having murdered the noble Father Nicolas Mascardi thirty years previously the Indians begged for Jesuits to enter their land again to instruct them. But in order to succeed with these people it was necessary to have "a strong constitution, complete indifference to all the comforts of life, a persuasive gentleness, strength, courage, and determination in spite of insurmountable difficulties encountered amidst a barbarous people."

The most distinguished of the scientists who were, perhaps somewhat grudgingly, given leave to enter the Spanish colonies were the French Academicians, headed by La Condamine, who came to Ecuador in 1735 to measure an arc of the meridian upon the Equator, and whose Spanish associates, sent by Madrid, made a detailed, frank and brilliant report of the condition of Peru, Ecuador and Chile. The *Noticias Secretas* handed to the King upon their return are extremely illuminating, especially in the light of the events of eighty years later, when the irritation which they observed between "creoles" (native-born Americans of European blood) and Spaniards from the Peninsula came to a head. The voyage of Juan and Ulloa, the accounts of Frezier, Feuillée and the Jesuits, were as eagerly read in Europe as the biographies of the corsairs, for whatever official reports were made by Spanish officials from Spanish America never saw daylight, strangers were forbidden to enter, and in consequence South America had the magic of the unknown.

By the middle of the eighteenth century Chile was still a small country, settled chiefly between Coquimbo and Concepción, yielding a little gold and silver from surface veins, but with her greatest activity in connection with agriculture; she was spared the feverish excitements and reactions of wealthier countries. Most of her trade was conducted by land, over the Andes into Argentina, with a brisk exchange of Chilean woollen ponchos, honey, hams and lard for *yerba maté* from Paraguay and European goods imported at Buenos Aires; to Peru was shipped wheat and wine and beef or pork fat (*grasa*), exchanged for cargoes of *aji* (red pepper) from Arica and silver from Potosí.

Commerce with the Araucanians, eager buyers of hardware, metal implements and ornaments in exchange for guanaco skins and cattle, went on in spite of the mistrust engendered by the events of 1723, when a general rising of the Indians took place, the settled villages of converts created by the Jesuit missionaries were deserted, and a new war commenced. The Araucanians themselves sued for peace on this occasion, a new Parliament was held with fresh agreements that the country below the Bio-Bio should be intact to the Indians, and the Governor agreed to withdraw the Spanish officials who had been posted in the villages of Christian Indians.

Castro, on Chiloé Island, traded its famous bacon and lard and planks of hardwoods (chiefly *alerce*) for manufactured goods, and maintained a sturdy if isolated existence; Osorno was little but a fort; Valdivia, with its port of Corral, was carefully guarded, since it was considered as the key to the South Sea, and five or six forts covered the bay and the waterway to the city. In 1720 there were a couple of thousand people here, chiefly convicts of Peru and Chile sent south dur-

ing their period of punishment, and the garrisons were maintained by Spanish and Peruvian Indian soldiers. Concepción was not only a Spanish stronghold, but a genuine agricultural colony, its splendid soil and enchanting climate, bright, balmy and temperate, bringing the settler who forms the backbone of Chilean society. Valparaiso was nothing but a shabby port, lacking a custom-house, all goods being shipped by mule-back to Santiago, ninety miles inland, or rather, 120 miles by the Zapata pass and Pudahuel, the only road then existing. It was fairly well defended by upper and lower forts overlooking the curve on the bay's south where the houses of Valparaiso lay along a narrow strip of beach. Santiago was a well-built city, the centre of a fortunate agricultural and pastoral region; northwards lay but one settlement of note, La Serena (Coquimbo), with Copiapó, a prosperous silver mining centre, farther north.

The changes affecting Spanish America were not limited to the entry of the French. Philip V, to induce Queen Anne of England to sign the Peace of Utrecht, agreed to give the right of supplying slaves (*asiento*) to the South Sea Company, for thirty years, from 1713 to 1743; by this agreement 4800 Negroes were to be annually taken to the Plate, and as a further and extraordinary concession the company was allowed to send one ship each year to the Porto Bello fair (below Panama, on the Atlantic coast). At the same time a peremptory stop was put to the overseas commerce of the French, who had been allowed by Louis XIV during the War of the Spanish Succession to trade from St. Malo to the American colonies of Spain, herself too much involved to aid them with supplies.

The war of 1739 between England and Spain put an

end to the English traffic for nine years, but the terms of peace included an indemnity to be paid to the South Sea Company for their trading rights, a British merchant in Buenos Aires carrying on for a few years (until 1752) the transportation of African slaves; after this time a group of Spanish merchants took up this traffic. It was in 1748 that Spain, finding her commerce with the colonies greatly reduced by home troubles, and the more or less legitimate efforts of other nations, from the 15,000 or even 25,000 tons of shipping formerly sent each year under convoy across the Atlantic, stopped the yearly visits of the famous galleons and the protecting warships. This fleet had sailed annually for 200 years. A system of unguarded merchant boats was licensed, ships sailing for the Plate six times a year.

In 1774 the rules forbidding the Spanish American colonies to trade with each other were relaxed by Charles III, and the effect of this is illustrated by the figures of Spanish merchant shipping sailing for the Americas in 1778, the year of the erection of a Viceroyalty in Buenos Aires, the fourth of Spanish America; no less than 170 vessels sailed, as against twelve to fifteen in the days of the yearly fleet of jealously licensed vessels.

In 1785 there was further relaxation, all the ports of Spain and all the ports of Spanish America being allowed to trade mutually, and as other proof of liberal ideas there came, in 1788, the appointment of Ambrose O'Higgins as Governor of Chile. This excellent organiser was born in Ireland, in County Sligo, and spent part of his barefoot youth in running errands for the great folk of his native village; he went as a youth to Spain, enlisting in the Spanish army, as many adventurous Irish did about this time, and later made his way to the Spanish American colonies. He distinguished

Reproductions from Gay's "History of Chile" (1854)

Más a Tierra (Juan Fernández Group) in the 18th Century.
Capturing Condors in the Chilean Andes.

O'Higgins' Parliament with the Araucanian Indians, March, 1793.
Guanacos on the Edge of Laja Lake.

himself in the Araucanian wars, was made a colonel, and in 1788 was nominated to the Chilean captain-generalship by Teodoro de Croix, the Viceroy of Peru, a native of Lille. The name of Ambrose O'Higgins is as much respected in Chile today as that of his son, Bernardo, born in Chillan, who became Supreme Director during the early days of Chilean independence.

Governor O'Higgins called the Parliament of Negrete with the Araucanians, and set about the improvement of Chile; found and rebuilt the ruins of Osorno fort, and made a road from Osorno to Valdivia; another highway from Valparaiso to Santiago; and a third from Santiago to Mendoza. He constructed bridges, notably over the turbulent Mapocho River, and his good Chilean work only ceased when he was created Viceroy of Peru, with the title of Marquis of Osorno. He remained in that post until his death in 1801. A spurt in town foundation during the eighteenth century also bears witness to the growing prosperity of Chile. Between 1736 and 1746 the courtly and wideawake governor Don José Manso de Velasco, Conde de Superunda, founded San Felipe, Melipilla, Rancagua and Cauquenes; the same official encouraged the operation of mines, making cannon for the defence of one of the Concepción forts from local copper, and reopening gold mines at Tiltil (between Santiago and Valparaiso) and developing the copper works of Coquimbo and of Copiapó. His successor, Don Domingo Ortiz, founded Huasco and Curicó, built the University of Santiago and began the Mint, completed during the régime of Don Luis Muñoz between 1802 and 1807. The plans, tradition says, were mixed with those for Lima, and by mistake Chile received authority for a much more splendid building than was intended for her, La Moneda still serving as Government offices in Santiago.

At the beginning of the nineteenth century Europe had undergone violent spiritual as well as material changes that could not fail to affect the world and inevitably produced reactions in the Americas. The independence of the United States had less effect upon South American thought than the French Revolution, for with North America the South was not in touch. There was little commerce, and the language difficulty was a bar, while French literature and French movements were extremely influential. The ideas of the Encyclopedists fell upon fertile soil.

When Napoleon conquered Spain, putting his brother Joseph Buonaparte upon the royal throne of the Bourbons and driving Ferdinand VII into exile, there was little thought upon the West Coast of this misfortune as an opportune time for seizing freedom. Even when the action of Mexico and Buenos Aires pointed the road of independence, Peru and Chile demurred from disloyalty and declared their intention of returning to the king when he should be again upon the Spanish throne. The grievances against Spain of which so much was afterwards heard were not realised by the majority of the populace, and in fact the creoles were well aware that from narrow trading policies, the dictation of officials, sumptuary laws, and the still-existent although waning burden of the Inquisition, Spain suffered even more acutely than her overseas dominions. The rights of *mayorazgo*, that is the preservation, intact for generation after generation, of enormous estates which could not be broken up among a number of heirs, or divided for sale, were a source of definite complaint; but it was an inheritance from the land tenure laws of Spain, also inelastic, to which they were inured by custom. The most fertile ground for the growth of animosity between the colonies and the mother country

seems to have been the tangible annoyance of the stream from the Peninsula, both of officials and merchants or adventurers. Don Antonio Ulloa, writing the "Noticias Secretas" for the King's eye in 1735, noted that the big towns were "theatres of discord between Spanish and creoles. . . . It is enough for a man to be a European or *chapeton* to be at once opposed to the creoles, and sufficient to have been born in the Indies to hate Europeans. This ill-will is raised to so high a grade that in some respects it exceeds the open hatred with which two nations at war abuse and insult each other." He thought the feeling tended to increase rather than to diminish, and notes that it was more bitter in the interior and mountainous regions, because the coast people were bent to a more liberal spirit by their dependence upon commerce with strangers, had more work to do and something else to think about. He gave as reasons for the mutual dislike, first, the "vanity and presumption" of the creoles; and next, the wretched condition in which many poor Europeans usually arrived in the Indies. The native-born were lazy, thought the Spanish officer, and envied the industrious and intelligent Spaniard the fortune which he presently made. The succession of Peninsular officials to many posts in the colonies was not without its influence in providing grievances also, but as a matter of fact a number of minor berths were frequently filled by the native-born, who also became Inquisitors and clerics, the list of viceroys and governors also providing a few colonial names, and a large number of American-born receiving good positions in Spain. But on the whole the colonies were necessarily still dependent upon Spain for blood, ideas, intercourse with the world, and, but for Napoleon, independence would have been long delayed.

The Fight for Independence

In many parts of Spanish America people had to be almost cudgelled into rebellion, and would never have stirred had they lacked a leader inoculated with a grandiose vision.

But here again the quite accidental figure of Napoleon intervened. It happened that both San Martín and Bolívar, the two most powerful instruments of the South American Revolution, were actual witnesses of triumphal ceremonies of the Napoleonic armies. The day when Simón Bolívar saw the Corsican enter Paris at the head of magnificent conquering troops, greeted with all the hysteric adulation due to a second Alexander, the immediate fate of Spain's South American colonies was sealed. It is easy to understand that such young men as San Martín and Bolívar, intelligent, trained to arms, well aware of the golden opportunity awaiting in their own countries overseas, and of the force behind the slogan of freedom, beheld themselves with rosy imagination in the same kingly rôle. Statues of these leaders stand all over Latin America, and it is but just that tributes should be paid. But the day of blind homage is past. Critics have dared to arise, and the skies have not fallen upon their blasphemy.

The formation of the "Gran Reunion Americana," with definite aims towards self-government of the Spanish-American colonies, was one result. Inaugurated in Buenos Aires, it spread "lodges" all over South America, following freemasonry in its terminology. One of the most influential of these branches was "Lautaro Lodge," at Concepción, with Bernardo O'Higgins as a member. The illegitimate son of the brilliant Ambrose O'Higgins by a native woman, Bernardo, born in Chillan in 1778, was sent to England for educa-

tion and returned to Chile upon the death of his father. Imbued with liberal ideas, candid and open-hearted, the young O'Higgins stood inevitably upon the side of emancipation, and served as one of the revolutionaries' most valuable assets. The stars worked together for the success of the extremists, for a motive far removed from any idea of revolutionary merits brought them the powerful aid of the Roman Catholic Church. Napoleon the "antichrist" was anathema: the colonists were therefore encouraged to refuse obedience to his puppet kings, and we find the clerics of the Americas hand in glove with the members of the Reunion Americana.

The colonists were by no means inclined in every region throughout South America to commit themselves unreservedly to the apostles of liberty; here and there the feeling of revolt was genuinely national, a spontaneous movement from the inside; in other regions the native-born only after some years, and when separation was practically forced upon them from the exterior, disavowed Spain. Confusion was introduced, that made it difficult for the most loyal to discover where allegiance lay, by the several claimants overseas. To Joseph Buonaparte no one wished to submit, and the French emissaries were coldly received; Seville setting up a Junta (Council) loyal to the deposed Ferdinand, asked and received the adhesion of the Viceroys in the Americas, but when this body was overthrown a new Junta established in Galicia sent out a new set of Viceroys. Next came the Central Junta, also obeyed until the French occupation of Andalusia dissolved it, and later a new authority of Spanish royalists, a Regency of three members, was announced in an edict sent out by the Archbishop of Laodicea.

Confronted with these various claims, and taking

breath after the English occupation of the Plate, Buenos Aires decided to form her own provincial Junta, in the name of Ferdinand, action supported if not suggested by the Viceroy Baltazar Cisneros.

In the middle of 1810, with Abascal, Marques de la Concordia, as Viceroy of Peru and General Carrasco Governor of Chile, there arrived to the West Coast the request of exiled Ferdinand that his American colonies should obey Napoleon. This bombshell was received with disgust by Carrasco, who wished to work with the Junta of Buenos Aires, but he did his official duty and read the document aloud to the populace of Santiago. This was in June. A tremendous public uproar followed, Carrasco and the rest of the Audience were turned out, and by popular acclaim an Assembly of Notables was formed, headed by Mateo de Toro Zambrano y Urueta, Conde de la Conquista, a highly respected old aristocrat who had been Governor of Chile in 1772. This body ruled on the understanding that Chile would refuse French control and would remain wholeheartedly Ferdinand's.

The Conde de la Conquista died in November, 1810, was replaced by Dr. Juan Martinez de Rosas, and elections for a popular congress were held in April, 1811, giving the signal for open strife between the different parties evolved by the confused political atmosphere. The first blood shed in Chile on account of independence was not a struggle with the mother country, but the result of dissensions among adherents of the Spanish or Argentine Juntas, "old Spaniards," groups desiring complete independence, the church party, and foreign interests. It was during this fight that the young José Miguel Carrera came first into military prominence; he was the son of a Chilean landowner, Ignacio Carrera, secretary of the Junta.

Congress held its first meeting in Santiago, in July, 1811, the deputy from Chillan being Bernardo O'Higgins, educated in England and endowed with the prestige of his father's name. It was not long before O'Higgins, then but thirty-five years old, was regarded as the leader of the "Penquistos" (southerners of Penco or Concepción, who wanted to see that pleasant city restored to her ancient pride as capital of Chile), in opposition to the rich central group, with Santiago as their stronghold and the Carreras as one of the most ambitious families. In common with many another new clique, the Carreras were growing rich upon the property which was now eagerly confiscated from the "old Spaniards" and from the wealthy religious orders, whose accumulated lands and long ascendancy had engendered such bitter enmity that, during the long war of Spain with England, Juan and Ulloa reported, many people said openly that it would be a good thing if England took possession of the Pacific Coast, so that they would be free from the oppression of the clerics. The Carreras, however, wanted more than money: their determination to seize political power was demonstrated when, in December, 1811, a military coup put the three sons of Ignacio into complete control of all the newly recruited Chilean land forces, with José Miguel as the commander-in-chief.

This young man dispersed the national congress by force, proclaimed himself President of a new Junta, and banished Dr. Martinez to Mendoza: all this still in the name of Ferdinand. But the confiscation of property, removal of Spanish officers from the army, declaration of free trade (a tacit invitation promptly accepted by many foreigners), abolition of slavery and collection of church income, spelt practical independence from Spain, and strong exception was taken in more than

one quarter. Valdivia and Concepción set up juntas independent of Santiago, and over a year of disruption followed, until the viceroy of Peru sent reinforcements to the Spanish commander in Chiloé Island, General Antonio Pareja, and the latter sailed north, landing at the mouth of the Maule with 2000 royalist troops for the disciplining of Chile.

José Miguel Carrera marched a Chilean army southwards, falling in with the Spaniards at Yerbas Buenas, fifteen miles from Talca; the ability of O'Higgins, commanding the forces in the field, brought about the defeat of Pareja, who was driven to Chillan — the extreme south remaining pro-Spanish and, in one spot or another, subject to Spanish influence until late in the year 1824.

A strange accident now turned the political tide against the Carreras. The central provinces, determined to endure no longer a rule of loot and tyranny worse than that imposed by Spain, deposed José Miguel in his absence by a vote of the Junta, and gave complete control of the army to Bernardo O'Higgins; the Carreras hurried north to watch their interests, were caught by a Spanish patrol and sent to Chillan. The Spaniards were presently reinforced by troops under Gainza, took Talca, and became strong enough by May, 1814, to arrange the Convenio de Lircay with the new political leader of Chile, Henriquez Lastra, Governor of Valparaiso. By this agreement the Spanish troops were to retire to Lima, on the assurance that Chile remained faithful to Ferdinand VII; its execution was guaranteed by Captain Hillier of the British man-of-war *Phoebe*.

But before the Convenio could be ratified, two events happened to prevent this solution of complications. The Carreras escaped and collected an army opposed to

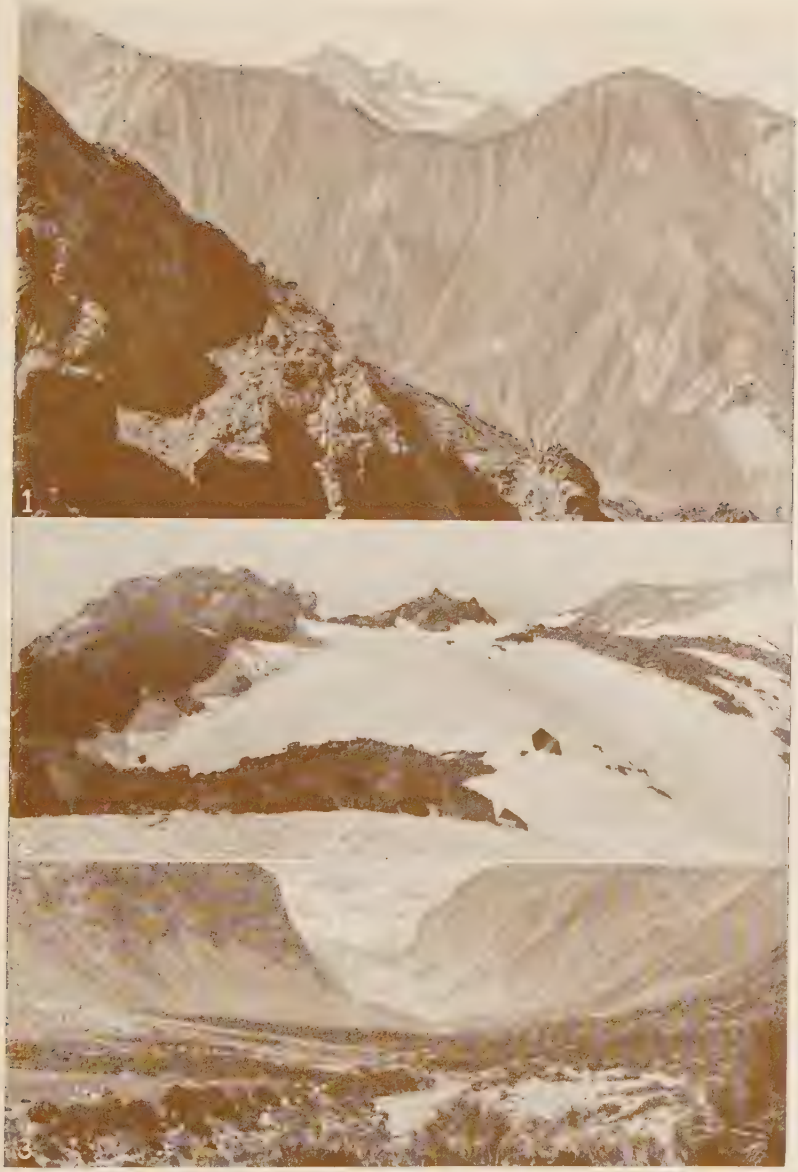
the agreement; the Viceroy Abascal received strong reinforcements from Spain, changed his mind about signing, and sent, instead of his signature, 5000 troops under General Mariano Osorio.

The parties of Carrera and O'Higgins composed their differences in the face of this aggression, marched to the encounter at Rancagua, and were there signally defeated, in October, 1814. The overthrow was so complete that the Chileans who had opposed Spain felt certain that no mercy was to be expected, and, with their wives and families, began an extraordinary exodus from the country over the Andes to Mendoza. The weather was cold, with deep snow and bitter winds; without proper baggage or sufficient food thousands of unhappy refugees crowded the mountain paths and passes for days.

Meanwhile, General Osorio marched north and entered the capital in triumph, welcomed enthusiastically not only by those citizens who remained royalist but by thousands who were tired of the partisan intrigues and condition of civil war to which the Carreras had reduced the country for over two years. A new Spanish Governor, Francisco Casimiro Marco del Pont, was inaugurated, about one hundred citizens prominent in the growing independence of Chile were deported to Juan Fernandez island, and for another twenty-eight months Spain resumed the rule of Chile, as she still retained control of Lower and Upper Peru and Ecuador. A fierce struggle between the Spanish and the northern patriots under Simon Bolívar had begun in 1811 and continued with tremendous reversals of fortune; Venezuela and Colombia (New Granada) were drenched in blood. Over the Andes, Buenos Aires had been actually independent since the middle of 1810, although the Spanish authorities held out with peninsular troops in

part of the north-west of Argentina, holding the roads into N. W. South America. Pueyrredon, the Supreme Director of Buenos Aires, seeing that Chile with comparatively facile mountain passes was the key to the West, decided to bring her to the fold of independence, raised an army, and put José de San Martín at its head. While the eldest of the Carrera brothers, with whom San Martín was upon hostile terms, went to the United States to try to get help in the Chilean struggle, a strong force of 4000 men was collected in Mendoza, the celebrated "Army of the Andes." By this time events had put Spain and the South American colonies into the position of furious opponents; the Peruvian Viceroy's actions forced Chileans to see patriotism as hostility to Spain. For the plain citizen, lover of his country with a desire to live in peace and to give and take fairly, it must have been difficult to choose sides as regards the authorities to whom he gave recognition and paid taxes; but for such revolutionaries as San Martín the vision was simpler. He hung his own portrait on the wall beside that of the Corsican; the memory of that superhuman conqueror infected his blood and filled his landscape.

The Spaniards in Chile, aware of the situation of the Army of the Andes, were tricked into believing that the main body intended to descend into the central valley by the southerly Planchon Pass. But early in February when the army was ready to set out, most of the troops were marched by the Putaendo and the Cumbre, emerging near the plain of Chacabuco on the 12th. The Spanish troops sent hurriedly to the encounter were scattered like chaff by the hardy South Americans, inured to wild country and able to march for days with sun-dried meat and a handful of toasted maize as their only food. The battle of Chacabuco was a rout so de-



In the Chilean Andes.
A Chilean Glacier, Central Region.
Rio Blanco Valley, above Los Andes.

cisive that the Spanish leaders did not even attempt to enter and hold Santiago: they fled hastily to Valparaiso, and, accompanied by scores of their panic-stricken sympathisers, filled nine ships and sailed away to Peru.

Bernardo O'Higgins, to whose energy this success was chiefly due, was made Supreme Director of Chile, openly independent now, with no more talk of Ferdinand, although the actual proclamation was delayed until February 12, 1818, upon the anniversary of Chacabuco. In the same year Osorio came back, with 5000 Spanish troops, and in March San Martín was surprised and his army badly defeated at Cancha Rayada; it was followed by a repetition of the exodus over the Andes as after the Rancagua defeat, but in better weather. Nor did the exile of the patriots last so long, for on April 5, before the Spaniards could take possession of Santiago, the Chileans attacked again and won the final victory of Maipu. Only about 200 Spaniards escaped to take ship for Peru, all the rest falling upon the Maipu plain or being taken prisoner.

Three days later, in Mendoza, the two younger sons of Ignacio Carrera were shot upon a frivolous charge, an event generally regarded with regret in Chile and always ascribed to the revengeful spirit of San Martín. These young men had been refused permission to join the Army of the Andes, were on parole in Buenos Aires and were still in that city when José Miguel returned from the United States. Here he had obtained means to fit out an expedition, promising to pay the debt with funds obtained from Chilean import duties later on; he chartered five ships, took on arms and ammunition sufficient for several thousand men, and received as volunteers a number of technical workmen, and over

a hundred military officers, including seventy French and British.

But when Carrera in his first ship entered Buenos Aires on the way to the Horn, the vessel was seized and he was placed under arrest on board a brig, from which he escaped into the Argentine interior. The remaining vessels of his fleet put back to North America. His two brothers also fled in disguise, but were captured, sent in chains to Mendoza, and there executed by the order of San Martín's secretary.

The place of the Carreras in history is not great, but they were Chileans of energy and courage deserving a better fate: the story of their youth and good looks, and the tale of Juan José's beautiful wife who shared his miserable prison until his execution, are still remembered. The fate of the elder brother was no more fortunate: during three years he allied himself with various guerilla revolutionaries in the heart of South America, but was eventually caught and identified, sent to Mendoza, and shot, in 1821.

Chile, now upon her own feet, was still not given up by the Viceroy of Peru, now General Pezuela, and since a land attack could not be again contemplated for a time, the Frigate *Esmeralda* was sent with the brig *Pezuela* to blockade Valparaiso. These vessels were driven off by the brilliant action of the *Lautaro*, a vessel recently bought and armed by the Chilean government and commanded by a young British naval officer, Lieutenant O'Brien, killed at the moment of boarding the Spanish ship. This was Chile's first naval victory, herald of almost unbroken success upon the sea; she was heartened to the immediate strengthening of this service, and set about the acquisition of vessels while also sending abroad for naval leaders. Chileans had up

to that time, of course, no experience in this arm of a nation's defence: the first Chilean-born admiral, Blanco Encalada, had had no experience but that of a midshipman in the Spanish navy for a few years in his youth. Chile was wise in looking overseas for technical skill. It happened that many British soldiers and sailors, fresh from the Napoleonic wars, were in England when the Chilean envoys came to seek help: hundreds of men took service, partly no doubt for the sake of adventure but also from a genuine sympathy with the gallant fight put up by a little country ranged against the ancient enemy Spain. Among the naval officers who came was Lord Cochrane, with a most distinguished naval career to his credit, the hero of a score of daring deeds at sea and an extremely competent organiser; no personality of Independence is more revered in Chile today than that of Cochrane, and he who said that republics are notoriously ungrateful could never make such a charge against Chile.

But before Cochrane arrived a new success had cheered the embryo navy. Serious danger threatened with news of the coming of a formidable Spanish naval force: a courier brought the story hotfoot from Buenos Aires, where the squadron had put in. Nine ships convoyed by the *Maria Isabella* of 50 guns set sail from Spain with two thousand troops, but one ship mutinied off the Argentine coast and joined the new Republic; another transport disappeared in the Pacific; seven, with the fine frigate, arrived in Talcahuano Bay in October, 1818, in a wretched state, over 500 men having died on the way. Chile's new little navy by this time consisted of five vessels: the *San Martin*, carrying 1000 men, was formerly the British East Indiaman *Cumberland*, which entered Valparaiso in August, laden with coal, commanded by a Briton named Wilkinson, and

went out as a vessel of war of Chile, under the same command. The *Lautaro* was now commanded by Captain Worcester, an American merchant skipper; the *Chacabuco*, by Captain Francisco Diaz, an "old Spaniard" who sided with the cause of Independence; the *Pueyrredon*, Captain Vasquez; and the *Araucana*, commanded by another Briton, Captain Morris. This force set sail southwards on October 9, and ten days later found the enemy ensconced under the forts of Talcahuano, a town which with Valdivia and Chiloé remained in the hands of the Spanish. In the spirited action which followed the *Maria Isabella* was run aground, but was seized and got off safely by the Chileans, while the seven Spanish transports were all taken, in the bay or later at sea.

Returning in triumph in November, the fleet was almost at once taken in hand by Cochrane, just arrived from England, and plans made for attacking Callao, where a Spanish squadron had its base. Neither the Chilean nor the Argentine patriots had any quarrel with Peru, but here was the stronghold of Spain on the West Coast; the Pacific could only be rendered safe for enfranchised Chile by its reduction.

In January, 1819, Cochrane sailed north in command of the fleet, consisting then of his flagship, the *O'Higgins* (formerly the Spanish *Maria Isabella*), the *Lautaro*, *San Martin* and *Chacabuco*. He took a provision ship and a gunboat of Spain, blockaded Callao successfully from early February till the beginning of May, although Callao was defended by fourteen ships of war and powerful batteries; he found time also to take several small ports up and down the Peruvian coast, as well as prizes carrying loads of cocoa, useful stores, and 200,000 pesos in money. Most of the coast towns were quite ready to embrace independence, but were alter-

nately punished by royalists and patriots for compliance with demands for supplies.

When Admiral Blanco and Cochrane returned to Chile another vessel had just been added to the little navy, the *Independencia*, purchased in the United States. Two vessels had in fact been bought, but when they arrived in Buenos Aires the agents of Chile had not sufficient specie to complete the payments for both, and had to see the second sail away to Rio, where she was sold to the Brazilian government, although Chile had paid half her price. The relations between the United States and Chile were peculiar at this juncture; the bulk of the population were certainly not unsympathetic, and a number of American individuals were doing a brisk commerce with the young country, but a certain small jealousy seems to have been shown towards Cochrane, and comparatively little help was given to the patriotic cause. But the United States Government quickly recognised the new Chilean government and had appointed a consul during the days of Carrera's régime.

Before Cochrane refitted his ships for new expeditions, the patriot armies had gained ground in the south, and the outlook had considerably improved. In September, 1819, the Chilean navy returned to Callao with seven ships, chased the Spanish frigate *Prueba* into the Guayas River, sailed up 40 miles to Guayaquil and seized two armed prizes, the *Aguila* and the *Bigoña*. At Puna island, where Spain built most of the vessels used in the Pacific between West Coast ports, Cochrane loaded his prizes with the famous hardwoods of the Guayaquil region, sailed out and took the *Potrillo*, a provision ship, and sent her to Valparaiso with news while he turned towards Talcahuano with the object of aiding in the obstinate southern struggle.

General Freire, in command of the Chilean army, lent him 250 men, and Cochrane proceeded in a small schooner to reconnoitre the entrance to Valdivia. Here he landed, at sunset on February 2, 1820, led his force of about 350 to the fort "del Inglez," attacked and took it, went on and stormed Corral fortress, and before the night was over the Chileans had taken possession of the four other main batteries of the south side. With the dawn came the *O'Higgins*, and realizing the uselessness of further fighting, the Spanish troops abandoned the northern forts and fled up river to Valdivia. The defenders numbered 2000, and the forts were provided with plenty of excellent guns: success was due to the daring of this stroke of Cochrane, a resourceful sea-fighter who well knew the value of a surprise.

"At first it was my intention to have destroyed the fortifications and to have taken the artillery and stores on board," wrote the Admiral to Zenteno, the Chilean Minister of War and Marine a few days later, "but I could not resolve to leave without defence the safest and most beautiful harbour I have seen in the Pacific, and whose fortifications must doubtless have cost more than a million dollars." He left a small force, and sailed farther south to try to take the last Spanish stronghold in Chiloé, where the gallant Colonel Quintanilla maintained a plucky and hopeless stand — and was destined to maintain it for nearly five more years. Cochrane landed in the bay of San Carlos on February 17, took the outer forts, but lost the way in woods and boggy roads during a black night, and thus gave the Spaniards time to assemble a force too strong for the Chilean attackers. They withdrew, and a body of 100 men was sent to take Osorno; this town was taken without resistance on February 26, and thenceforth Spanish

military work on the mainland was limited to guerilla disturbances in the forestal interior. Many Spaniards took refuge among the Indians, and the tragi-comedy was enacted, for several years, of both the new Chilean parties and the Spaniards flattering and bullying the Araucanians into taking sides. To political divergences the native must have been profoundly indifferent; despite the fact that his frontier still stood at the Bio-Bio River and his southerly lands were intact, his spirit had been warped by the steady pressure of three centuries, and perhaps most seriously changed by the civilised habits he had learnt from the white man. He had taken to cultivation, to the use of European foods and a few implements; as a result, he had needs hindering his ancient freedom and he could be cajoled by their satisfaction. "I have distributed to each cacique on taking leave," wrote Beauchef to Cochrane after the taking of Osorno, "a little indigo, tobacco, ribbon and other trifles." And also with ribbon, tobacco and "trifles" the Spanish survivors, or the recalcitrant Benavides (wavering first on one side and then the other and finally to outlawry in the woods), and the patriots of Chile, bought the Indian, giving him short shrift when territory or villages changed hands. Eventually, in 1822, a Chilean punitive force was sent to the south, the Indian country inland from Valdivia was reduced, and the Spaniards troubling that region given up. The diary of Dr. Thomas Leighton, an English surgeon acting as medical officer of the expedition, as quoted by Miers, is extremely illuminating.

With Valdivia in their hands, the Chileans were able to contemplate a bold stroke. It was decided to clear Spain once and for all from the Pacific by bringing Peru into the camp of independence: the return of Cochrane from the south was the signal for completion of plans

for a combined naval and military attack upon the last great stronghold of Spain. The "Ejercito Libertador" (liberating army) was prepared with immense enthusiasm, embarking from Valparaiso in August, 1820, preceded by proclamations from O'Higgins, who declared the wish of Chile to contribute to the freedom and happiness of the Peruvians, who would "frame your own government and be your own legislators." "No influence," he stated, "civil or military, direct or indirect, shall be exercised by these your brothers over your social institutions. You shall send away the armed force that comes to protect you whenever you wish; and no pretext of your danger or your security shall serve to maintain it against your consent. No military division shall occupy a free town except at the invitation of the legal authorities; and the Peninsular groups and ideas prevailing before the time of Independence shall not be punished by us or with our consent." O'Higgins was undoubtedly sincere; Cochrane was free from any trace of selfish or ulterior motives; but San Martín's objects were less simple. His position was peculiar; sent originally into Chile at the instance of Pueyrredon, he had practically disavowed his party in the Argentine, where no political laurels seemed likely to offer, and taken service with Chile. But here he had to share popular affection with the beloved O'Higgins and the applauded Cochrane; in Peru he might have the field to himself, and to this end he forthwith worked.

The Chilean fleet spent 50 days in Pisco, while the Chilean Colonel Arenales marched upon and took a number of other small Peruvian towns on or tributory to the coast, with Ica, Nasca and Arica among them; from the latter port he marched inland and seized Tacna. Meanwhile San Martín was negotiating with the Peruvian Viceroy, Pezuela, but the "truce of Miraflores"

split upon two rocks — the Viceroy refused demands that he should acknowledge the independence of the South American colonies: San Martín could not sign acknowledgment of even nominal submission to the Spanish Crown. The Liberating Army eventually set sail again on September 28, and passed on to Callao, where on November 5 Cochrane, with 240 volunteers, performed the exploit, never forgotten in the annals of the Pacific, of cutting out the Spanish frigate *Esmeralda*. This fine ship had 40 guns and 350 men, lay inside a strong boom and a line of old vessels, was surrounded by 27 gunboats and protected by 300 guns of the forts on shore. But Cochrane boarded and took her, and with a couple of other Spanish gunboats sent her outside to an anchorage beyond the reach of the Peruvian cannon. Renamed the *Valdivia*, she afterwards served as a unit of the Chilean fleet.

San Martín, now at Ancon with his forces, delayed the projected attack upon Lima, sent out sheaves of grandiloquent proclamations, and watched with anxiety affairs farther north, where the now triumphant Bolívar was occupying Quito and might push forward to Guayaquil — a rich province also coveted by San Martín and to which he now sent envoys with suggestions that Bolívar should be kept out. For the next seven months San Martín's forces remained idle, although a part of the force under the British Colonel Miller and the able General Arenales continued to range the coast; Cochrane maintained a close blockade of Callao, and at last, unable to get supplies and alarmed by the insecurity of their position in Lima, the Spanish authorities evacuated the city and went to Cuzco. This was on July 6, 1821, and for about a week order was kept in Lima by Captain Basil Hall of H.M.S. *Conway* with a handful of marines. San Mar-

tín then sailed to Callao and took possession of Lima, where Independence was proclaimed on July 28.

On August 4, San Martín declared himself Protector of Peru, proclaiming his absolute authority and naming three associates as the cabinet ministers. Requested by Cochrane to pay the wages and bounty promised to the fleet on the fall of Lima, San Martín answered that he could not, as Protector of Peru, pay Chile's debts, said that he could only find the money if the squadron were sold to Peru for his use, and presently had the effrontery to invite Cochrane to leave the service of Chile and become Admiral of Peru.

Cochrane's indignant replies are historical; he sailed away after repeated attempts to obtain the sailors' wages, and, learning that San Martín had shipped a considerable treasure to Ancon (upon the advance on Callao of the still undefeated Spaniards), went there and took possession of the gold and silver. One can imagine the grim smile of the experienced old sailor as he made this haul.

San Martín assented with reluctance eventually to its use as part payment of the sums due, but there was no possibility of further friendly intercourse. Cochrane sailed north, on October 6, with the Chilean fleet in a wretched state, ill equipped and almost unseaworthy. He went up the Guayas to Guayaquil, received with rejoicing by the now emancipated town, refitted, and put to sea again in the first week of December. Fonseca Bay was visited on December 28, Tehuantepec on January 6, Acapulco three weeks later, in the hunt for two Spanish ships, the *Prueba* and the *Venganza;* the latter was chased and followed into Guayaquil, the former into Callao, where Cochrane himself reappeared in April. Here San Martín sent his ministers to wait upon the sailor, making new propositions, including the

post of admiral of the joint squadrons of Chile and Peru. Cochrane answered bluntly that he would have no dealings with a government founded upon a breach of faith toward the Peruvians, supported by tyranny and the violation of all laws; that no flag but that of Chile would be hoisted upon his ships; and he refused to set foot ashore. He brought the fleet back to Valparaiso on June 2, 1822, after two and a half years of ceaseless effort in the service of Chile. The Pacific no longer showed a Spanish flag upon ship or fortress: his work was done. When Cochrane left Chile in January, 1823, the independence of the country was definitely assured.

Spanish rule in the Americas had endured for three hundred years, but at the end of that period it cannot be said that the profit of her conquest and colonisation was on the side of Spain. The amazing courage of the conquistadores forms a record without parallel, not upon the part of such great figures as Cortes and Pizarro only, but scores of less known pioneers. "In a period of seventy years," Cieza de Leon has written, "they have overcome and opened up another world than that of which we had knowledge, without bringing with them waggons of provision, nor great store of baggage, nor tents in which to rest, nor anything but a sword and a shield and a small bag in which they carried their food."

Between 1519 and 1811 the Spaniards smashed three established and at least one embryo civilization in the Americas; but on the other side of the ledger they gave the contact with West European speech, thought, crafts and aims that brought immense American regions into line with the rest of the modern world. It is true that vast stores of precious metals were taken away: but in return were given two things more valuable, ideas and blood.

Spain herself materially suffered in the long run. Her best youth was drained overseas, or lost in the wars in Europe to which her gold tempted her. In 1800 the commerce, agriculture, wealth and industry of Spain were "almost nothing, compared to what they were when she conquered America," says Torrijos. The population had been cut in half. Spain has been correctly charged with narrowness of policy in regard to her colonies; it is frequently forgotten that all rules of commerce and colonization were narrow during the same period — examples are still to be found of nations surrounding themselves with a sky-high tariff wall; and if Spain forbade the American colonies to cultivate Spanish products, in turn Spaniards were not permitted to grow the crops peculiarly American. As a matter of fact this rule was much more rigidly insisted upon within the small compass of Spain, since in the Americas it was to the interest and convenience of officials to shut their eyes to breaches of the rule. Spain's decree forbidding cultivation of the vine in Chile, for example, was practically a dead letter, a show being only occasionally made of attempts to carry out the law.

Chile, free and young, faced many problems, but was able to look upon the future with confidence, secure at least in the active sympathy of the greater part of the world. Spain, her power broken and her armies destroyed, stood alone. Her wounds were long in healing.

Republican Chile

Accounts of the naval or military affairs of one particular nation often read as if those events had occurred in a heavily screened vacuum. But the march of affairs in the Pacific during the struggle for independence were not only watched breathlessly by other American

nations — particularly Mexico, Central America, Colombia and the United States — but also by Europe, immensely affected by the success or failure of Spain to reassert her possession of the colonies. Vessels of war of the United States and Britain ranged up and down the coast, their position as neutrals complicated by the fact that many of their own nationals were interested, either openly and quite un-neutrally, in promoting the success of the revolting South Americans, or in commercial transactions which were frequently perfectly legitimate and straightforward, but which were sometimes kaleidoscopic. Fluid and irregular trade conditions had prevailed upon the coast for a century: Spain had been forced during her long wars to give an increased number of trading licences, and much commerce was performed under cover of Spanish names by foreign merchants. During Cochrane's efforts to stop the smuggling and underhand traffic that went on, particularly in the series of small ports (headed by Pisco and Arica) in South Peru, he found himself more than once at loggerheads with the merchants, and with the British and other foreign squadrons watching affairs. Duties ran high, sometimes up to 60 per cent ad valorem, and in consequence along this "Entremedios" region a tremendous amount of smuggling flourished; many of these little villages formed on occasion markets for the interior of such size that the coast was glutted with European goods and merchandise among the sand-hills was as cheap as at a bargain sale.

Banks did not exist, and there was no adequate exchange of South American products; cash was paid and had to be shipped overseas. A custom grew up among the British traders of sending such payments home by naval vessels, and as a percentage was paid upon these sums for safe-carriage to the captains of men-of-war, a

direct interest was created in commercial prosperity. When Cochrane, on behalf of the Chilean government, suggested a new customs rate of 18 per cent, taking on board and guarding a quantity of disputed goods, there were international and loud objections to his "floating customhouse." With the establishment of the young countries was closely entangled a number of commercial interests with wide ramifications.

While the movement of affairs in Lower and Upper Peru, Bolivia and Ecuador, filled public attention, the new Chile struggled to secure stability as a self-governed country. The steps towards this end were not all easy. The country had never been wealthy — in fact, scarcely self-supporting, for the shipments of agricultural and mineral products to Peru and Spain did not pay the costs of government and defence against the Indians — and she was now nearly bankrupt. A terrible burden of expense had been incurred for the military and naval campaigns in her own south and in Peru, and the confiscated property of "old Spaniards" and the religious orders was not an inexhaustible treasure. A loan raised in London in 1822 gave no more than temporary relief, and heavier taxes were imposed than in the days of Spanish control. The exhilaration of new hopes, the realization of the inner strength of the Chilean nation, did not suffice to save the country from a period of dissatisfaction and unrest.

Bernardo O'Higgins never lost his personal popularity, but murmurs against his minister of finance, Rodriguez, imperilled his position. The national congress called in July, 1822, sat until October to frame a new tariff (commercial regulations) and a new constitution to supersede the tentative proclamation of 1818. But illiberal restrictions created by the new decrees closed all the minor ports to foreign vessels, and every Andean

San Juan Bautista, Village of Cumberland Bay, Más a Tierra Island (Juan Fernández Group), 400 Miles West of Valparaiso.

The Plain of Calavera, Chilean Andes.

pass but one; prohibitory duties were placed on many articles of foreign manufacture,

The composition of Senate and Chamber of Deputies was outlined, the Senate's and Director's term of office fixed at six years, while the deputies, from whom a property qualification was required, were to be elected annually, one for every 15,000 people. The Director was made head of the army and navy, with powers to create foreign treaties and to make peace and war. The treasury and all ecclesiastical appointments were in his hands, as well as the naming of ambassadors, judges, ministers and secretaries of state. In the middle of October, 1822, General San Martín suddenly reappeared in Valparaiso, in the character of a private citizen whose health required a sojourn at the medicinal baths of Cauquenes. He told a tale of voluntary renunciation of Peruvian dignities that received little credence; as a matter of fact, the luck that for a period had made him appear a master of men had failed him at last.

From the time when he made himself Protector in Lima (August, 1821) the Peruvians had taken exception to his arrogance, his oppressive treatment of leading citizens, the extortions of his ministers, and complained of the want of stability in the country. In the interior Spanish forces still maintained themseves, while San Martín kept idle an army of 8000 men, a burden upon the populace. Early in April, 1822, the royalist General Canterac marched quickly upon the coast and inflicted a severe defeat upon the forces of the Protector, near Ica. San Martín, alarmed, decided to ask aid from Bolívar, fresh from victories in the Ecuadorian ininterior, and sailed to Guayaquil. He was received by Bolívar on July 26, but with such hostility that, fearing for his personal safety, he left hurriedly on July

28, and sailed back to Callao. He found that Peru had undergone a *coup d'état*. Upon his departure leading citizens held a meeting, insisted upon the resignation of his unpopular minister, Monteagudo, and deported him. San Martín accepted the warning and waited only until the convocation of congress to offer his resignation and to leave the country. If he had any dream of returning to take a part in public affairs in Chile or Argentina, it was speedily dissipated, and presently he retired to an estate at Mendoza, now a part of his native Argentina. His arrival and the fears of Chile that he contemplated some disturbing stroke probably hastened the irruption of feeling against the heads of the Chilean Government, by whom San Martín was received with extreme friendliness. No hostility was expressed against O'Higgins, whose memory agreeably survives in Chile, but the detested Rodriguez was increasingly blamed for the blighting commercial decrees and the general depression of the country.

In November, 1822, Chile experienced one of the most disastrous earthquakes of the century: a month later another upheaval occurred, with armed insurrections both in the north and south. The division of the "Penquistos" from Santiago was newly emphasized by violent dissatisfaction with laws against grain exports, and the cause of the south was championed by General Ramon Freire, military governor of Concepción, and echoed by Coquimbo, also angered by the heavy export dues placed upon copper, collected in the north but spent in Santiago.

While the troops of Freire crossed the Maule, his northern supporters under Benevente marched south; by the end of January they had reached Aconcagua and had secured the adhesion of Quillota. On the 28th a group of leading citizens visited O'Higgins and induced

him to resign his authority into the hands of a junta of three, until the national congress could be again summoned. But the arrival of Freire in Valparaiso Bay with three warships and 1500 men put a different complexion upon governmental plans. Freire camped his men outside Santiago, declared his lack of personal ambition, but presently accepted the offer of the Directorship from the Junta. A new constitution was evolved at the end of 1823, which does not concern history since it was abrogated a year later in the face of new danger from Spain, speedily dispelled, when Freire needed larger powers.

From this period Chile slowly fought her way to social solidarity, her true wealth in agriculture developing steadily as the population increased. It is true that from a political standpoint there were few outstanding figures during the last eighty years of the nineteenth century, but whether from the outside or the inside the men appeared who brought the country to economic strength and gave her all that she lacked as regards markets, means of communication and development of her almost unsuspected resources.

In 1830 internal disturbances took place, chiefly as the result of the reaction of the *pelucones* (the Conservative-Church-aristocratic group) against the Government party of *pipiolos* (Liberals). The victory of the Army of the South at Lircay (April 17, '31) resulted in the election of the successful general, Prieto, as President, and during his term of office (1831–41) the brilliant minister, Diego Portales, advanced the country's progress materially and framed the Constitution which is still in force. Portales was assassinated upon the eve of Chile's expedition to free Peru from the domination of a foreign dictator, in 1837.

The occasion of this war was the rise of the aggressive Bolivian general, Santa Cruz, and his invasion and reduction of Peru. Chile regarded this forced Confederation as a challenge, sent armies to the north, took Lima, and defeated Santa Cruz at the battle of Yungay (January, 1839), when the Confederation fell apart.

The victor of Yungay, General Bulnes, ruled Chile for another ten years (1841–51), a prosperous and quiet period marking a tremendous stride forward in the country's advance. Manuel Montt, the next President, served for another ten-year period, but was troubled first with a rebellion under General de la Cruz, crushed at the battle of Loncomilla at the end of 1851; by a revolt of the Atacama miners, put down at Cerro Grande in April, 1859; and a serious affray at Valparaiso late in the same year. During the succeeding government of José Perez occurred Spain's last hostile act against her former colonies, when in 1865 a naval squadron sailed into the Pacific, seized the Chincha islands off Peru and demanded the payment of the old Peruvian colonial debt. Chile made the cause hers, and mobilized her fleet, brought upon herself the bombardment of Valparaiso on March 31, 1866, but seized the Peruvian gunboat *Covadonga* off Papudo port.

In 1879, during the administration of Anibal Pinto, war broke out between Chile and Bolivia, afterwards joined by Peru, with the result, after the cessation of hostilities in 1883, of the acquisition by Chile of practically all the nitrate fields of South America.

A little later, Chile's internal peace was curiously disturbed by the recurrence of old trouble concerning church privileges. The Chilean government claimed the right of nomination of church dignitaries, and the question was brought to a head when the Pope refused to appoint

a candidate to the Archbishopric of Santiago chosen by the administration of Santa Maria (1881–86). A governmental decree rendering civil marriages legal in the eye of Chile, and another insisting upon the right to bury non-Roman Catholics in city cemeteries, roused a great deal of popular passion and clerical objection.

Unrest culminated during the administration of Balmaceda, when quarrels broke out between the President and Congress, and his attempts to govern the country without that body ended in a mutiny of the fleet. Sailing to the north, the insurgents prepared their plans for eight months, training an army, until is was brought south in August, 1891, and Balmaceda wat defeated at the battles of Concon and Placilla. When the president shot himself in September of the same year, the mantle fell upon one of the insurrecto leaders, Admiral Jorge Montt, son of Manuel. Another of the Montt family, Pedro, occupied the presidential chair from 1906 to 1910, a period marked by great energy in the construction of ports, highways and railroads.

Since the Balmaceda revolt Chile has enjoyed complete internal and external peace, the administration of the country remaining in civilian hands and following the normal course of electoral changes.

CHAPTER III

STRANGERS ON THE PACIFIC COAST

Drake and the "Golden Hind." — Thomas Cavendish. — The Narborough Expedition. — Sharp and Dampier. — Captain Betagh. — The Loss of the "Wager." — Juan and Ulloa. — Resident Foreigners. — Strangers and Independence.

From the time when she planted her first colonies on the West Coast of South America Spain did her utmost to keep strangers from those shores or from any knowledge of them. A veil of mystery hung over the Pacific, torn aside roughly when Drake's little vessel weathered the furies of the Magellanic Strait and the resounding tale was published broadcast throughout Europe.

There is no reason to doubt the historic truth of Drake's words as repeated by the gallant Captain John Oxenham — that, viewing the Pacific from a hill on the Isthmus of Panama during his famous raid upon Nombre de Dios in 1572, Drake "besought Almighty God of His goodness to give him life and leave to sail once in an English ship in that sea." The Devonshire sailor undoubtedly urged repeatedly in England, after that time, that reprisals for Spanish injuries inflicted upon England could be best made by direct attack, and as he told Queen Elizabeth, small good could be done by attempts on Spain herself, but that as all Philip's wealth was drawn from overseas "the only way to annoy him was by his Indyes." The Queen, however, did not consent to such strokes until after Philip had tried to raise a rebellion in Ireland and actually landed forces

there; both she and her envoys had in mind, not only a blow at Spanish prestige, and "some of their silver and gold which they got out of the earth and sent to Spain to trouble all the world," but the extension of the Protestant faith and the glory of England by the conquest and settlement of wild lands. The evidence of Oxenham and Butler before the Inquisition in Lima in 1579 proves that Drake intended to colonise if he could, "because in England there are many inhabitants and but little land." When, on leaving the coasts of Mexico, he sailed farther north, landed after entering the Golden Gate and claimed "Nova Albion" for the Queen, he felt completely justified because "the Spaniards never had any dealing, or so much as set a foot, in this country, only to many degrees southward of this place." San Francisco stands today on the spot where Drake's chaplain held service; the map, still extant, of Drake's correction, show that he foresaw the time when English-speaking colonies would dispute with Spain, France and Portugal possession of the Americas.

Armed with Elizabeth's formal commission, her own sword, and the title of Captain-General, Drake sailed from Plymouth on November 15, 1577, with five ships, of which the largest was the *Pelican*, of only 100 tons, but very strongly built. Officers and crew totalled about 164, and among them was his cousin John Drake, then a clever lad of fourteen years. A storm compelled them to put into Falmouth, and after repairs they sailed again on December 13. Land was first touched at Cape Mogador; thence the little fleet sailed to Cape Blanco, where they took a Portuguese ship with a store of fish and biscuit; to Cape Verde, where a Spanish merchantman's load of cloth was seized; next to the river Plate, for water and wood, on April 27, 1578,

and on to Port San Julian, where Magellan had executed mutineers, and where, for the same crime of mutiny, Drake beheaded Thomas Doughty. The master-gunner Oliver was killed here by Patagonians, and during the two-months' stay the Portuguese prize, the *Maria*, as well as the *Christopher* and the *Swan* were broken up. The weather was cold and the expedition was sorely in need of firewood.

Sailing south, they sighted the entrance of the Strait on August 17, naming one of the three islands off the south shore "Elizabeth Island." The Strait was actually entered on the twenty-first of August, with winter well advanced. They saw no Indians at first, but quantities of the smoke from the innumerable fires that gave the great island on the south its original name of "Land of Smoke." At Penguin Island they stopped to kill and salt a supply of birds, the Purchas account of the voyage stating: "This Strait is extreme cold with Frost and Snow continually: the Trees seeme to stoope with the burthen of the Weather and yet are greene continually; and many good and sweet Herbes doe very plentifully grow and increase under them."

At the passage's western end the weather was so furious that the *Marigold* sank with all hands. The captain of the *Elizabeth* put his ship about and deserted, fleeing back through the Strait for England, where he was promptly sent to prison. With the loss of a pinnace, whose one survivor, Peter Carder, a Cornishman, eventually made his way back to England in 1586, after terrible sufferings in Patagonia and Brazil, Drake had only his own flagship, the *Pelican*, whose name he now changed to the *Golden Hind*. About 80 men remained, half of the number who had set out from Plymouth.

Driven down to the sixty-sixth degree of south latitude, 14 degrees south of the western opening of

the Strait, Drake put about as soon as the terrible gales permitted and ran north outside the channels and archipelagos of South Chile. They saw Valdivia, or rather, Corral, but did not enter, anchoring first at the island of Mocha, in about 38 degrees, almost opposite the present Traiguen. Here a party went ashore to get water, but were fiercely assailed by well-armed Indians, who wounded every man of the English company, some receiving over twenty arrows. Returning hastily, the party left two men behind, and three others died of their wounds on board.

Sailing farther north in search of Valparaiso, they overshot the entrance, but discovered their mistake when they anchored in the bay of Quintero, 18 miles to the north, and found an intelligent Indian, who told them of a Spanish ship then lying off Valparaiso. Him they took as a guide, and returning boldly sailed into and anchored in the bay at high noon of December 5, 1578. At anchor also they saw *La Capitana* ("the flagship") in which Pedro Sarmiento had a few years previously made his famous voyage of discovery to the Solomons. The Spaniards aboard the *Capitana*, never dreaming that a vessel in the Pacific could be other than Spanish, hailed and welcomed them. Drake sent a boarding party, which rudely awakened their hosts when one Thomas Moon began to lay about him, struck a Spaniard and said to him (says the Purchas account) "Abaxo Perro, that is in English, Goe downe Dogge." The Spaniards were put under hatches, a prize crew sent aboard, and going ashore and breaking open the warehouse Drake added 1700 jars of wine, and stores of salt pork and flour, to the treasure he had found in the *Capitana*, amounting to 24,000 pesos of the "very fine and pure gold of Baldivia," due for shipment to Peru. One Spanish sailor pluckily swam ashore and

warned the inhabitants of the settlement; there were but nine households, and the people abandoned the place to the English, who found little to loot but the silver ornaments from the chapel. Two days later they weighed anchor and returned to Quintero, where the friendly Indian was set ashore with gifts, and Drake set his course for more northerly ports, using the sea-chart of the *Capitana's* pilot.

At Tongoy Bay, where they put in next, they found no water, and went on to the beautiful Herradura just above it, a few miles south of Coquimbo Bay with its little Spanish stronghold of La Serena. Twelve men went ashore here to get water, but were attacked by a number of Spanish horsemen. Thomas Minivy, leader of the shore party, got his men into the boat, but was attacked, and, defending their embarkation with arquebus and sword, was killed. Drake now went on to Salada Bay, where he stayed for over a month to careen the *Golden Hind*, to bring up from the hold and place in position his artillery, and to build, on board the *Capitana*, a pinnace with planks brought from England. She was launched on January 9, 1579. Several times during his stay Spaniards came from Coquimbo to look at him, but did not attack, according to the statement made later to Captain Sarmiento by Juan Griego, the boatswain of the *Capitana* taken along the coast by Drake, and corroborated by the log-book and Nuño da Silva the pilot.

Setting sail, they missed the mouth of the Copiapó River, and had an anxious search for water along the arid coasts of Tarapacá. Entering at length the mouth of the Pisagua River they had a stroke of luck, for there on the bank lay a Spaniard, fast asleep, in charge of a train of llamas laden with silver bars from Potosí and a quantity of *charqui* (dried meat). Taking him as a

guide, and seizing his cargo, they sailed for the port of Arica, a village of only 20 houses, but at that time the chief point of embarkation of the silver from the interior mines. Brought from the mountains by Indians and llamas, the precious bars were sea-borne from Arica to Peru (Callao, for Lima) to await the yearly despatch of treasure to Panama City, and overland by Cruces to Porto Bello. Of these arrangements and their usual date Drake well knew, for but six years previously he had lain in wait for and captured the train load of mules carrying silver ingots along the cobble-paved pathway through the Isthmian forest.

Proceeding to Arica, the *Golden Hind* surprised and took two ships, one containing 33 bars of silver; but hearing that a ship laden with a richer treasure was in the port of Chule (about five miles north of Ilo) he hurried on. However, before his arrival warning had reached the captain, who disembarked and buried the silver bars, and Drake's only satisfaction was to take the ship along and set her adrift, himself sailing on to Callao. Strangely enough, no news had reached Lima of the long sojourn and repeated raids of Drake upon the coast, and he was able to enter the bay without rousing suspicion on the part of the vessels anchored there. At this time (February 13, 1579), John Oxenham was still alive, in the prison of the Inquisition in Lima, with two or three of his crew; Drake knew it, and although he could not risk the ruin of his expedition by any such attempt as an attack on Lima, he hoped to seize Spaniards of sufficient importance to exchange for the English prisoners. When John Drake was examined before the Inquisition in Lima in 1587 he said that "Captain Francis . . . in the boat, with six or seven men, accompanied by the pinnace carrying twenty or thirty men, went to the other vessels anchored there and

cut their cables. . . . This was done so that, having been cut loose, the wind would carry these ships out of port, where he could seize them and hold them for ransom, so that in exchange they would give him the Englishman who was said to be a prisoner in Lima." The plan did not succeed. A calm fell, and an attack by the pinnace on a ship from Panama was repulsed with the loss of a man; she was afterwards taken when her crew abandoned her. At night the tide carried them outside the port, and when in the morning three or four vessels came out against the *Golden Hind* Drake ran before the wind, sailing north until Paita was reached. A ship was taken here and another farther north, but it was not until the first day of March that young John Drake won the chain of gold that had been promised to the first person sighting the coveted treasure ship of San Juan de Anton. Two days later Drake transferred from the captured ship an immense treasure, including much gold and fourteen chests of silver, letting her go on March 6.

Thence his exploits do not greatly concern the Pacific coast; he took vessels off Nicaragua, plundered the Port of Guatulco in Mexico, sailed to the Californian coast, and when he met ice shaped his course southwest, making for the Moluccas, the Cape of Good Hope, and so back to Plymouth, arriving with the greatest treasure that was ever carried in one little sailing vessel and the undying record of a extraordinarily bold feat in the circumnavigation of the globe.

It is the effect of Drake's exploit upon the West Coast which concerns these pages chiefly, but it is only fair to the memory of a gallant man and fine sailor to say that not only was he beloved at home, but that the noble Spaniards with whom he came in contact did justice to his qualities. Not unnaturally, the ports that he raided

feared and hated his name; but such a man as Don Francisco de Zarate taken prisoner by Drake off Acajutla (El Salvador) in April, 1579, called him "one of the greatest mariners that sails the seas, both as a navigator and as a commander." A remark of Zarate's that follows sheds a bright light on Drake: "Nine or ten cavaliers, cadets of noble English families, form part of the council which he calls together for the most trifling matter, although he takes advice from no one. But he enjoys hearing what they say, and afterwards issues his orders." Zarate was shown, and apparently accepted the propriety of, Elizabeth's commission to Drake, and informs the Viceroy of Mexico that "I managed to find out whether the General was liked, and they (the crew of the *Golden Hind*) all said that they adored him."

Thomas Cavendish

The effect of Drake's feat upon the New World was electric. The Viceroys of New Spain and Peru, the Audiencia of Panama, Governors of every province, hastened to strengthen weak ports with troops and artillery; ships changed their routes, scores of reports and letters went home to Spain. Philip II, who through his clever Ambassador at the court of Elizabeth knew of the expedition before it sailed, wrote discreetly on the margin of one such letter, "Before the Corsair reaches England it is not expedient to speak to the Queen. When he arrives, yes. Investigate whether it would be well to erect a fort in the Port of Magellan."

But noisy as was the repute of the exploit in the Pacific and in Spain, it had no less effect upon the imagination of Europeans desiring a share in exploration and its rewards. Spain's tragic effort to found a

settlement in the Strait was almost blotted out when Thomas Cavendish passed through in 1586.

Cavendish was a native of Trimley in Suffolk, a good mariner; he sailed across the Atlantic with three ships, the largest of 120 tons, entered the Strait in January, 1586, and passed out into the Pacific on February 24. Sailing north to the island of St. Mary, he found stores of good wheat and barley, and potato roots "very good to eat." Hogs and hens, introduced by the Spaniards, were thriving, and although the Indian small farmers were so much in subjection to the Spaniards that they dared not eat a hog nor hen themselves, in compensation for these restrictions all had been made Christians.

Running north, Cavendish anchored near Concepción; in the bay of Quintero they had an encounter with Spaniards on horseback, and the captain himself, who travelled eight miles inland, declared the valley country to be "very fruitful, with fair fresh rivers." Off Arica the raiders took a ship, and went on north, raiding the coastal vessels; eventually they burnt Paita, raided Puna Island at the mouth of the Guayas River, and lost men there.

Cavendish took two years and two months to complete the round of the globe, and the Pacific had hardly settled down again after the trouble caused by this corsair when, in early 1594, Richard Hawkins, son and grandson of fine mariners, came through the Strait. An acute observer, he noted the handsome Winter's Bark trees of the southern channels, finding the seeds like good pepper and the bark "very stomachic and medicinal." On the West Coast Hawkins was unlucky, encountering a strong Spanish fleet which captured him in June, 1594. He was taken to Lima, sent prisoner to Spain, and after eight years

of captivity was released to return to his Devon home.

In 1598 the Dutch appeared, in the person of Captain Oliver Noort, piloted by one Melis, an Englishman who had sailed with Cavendish. Noort traversed the Strait, sailed north to Mocha Island, where he drank chicha for the first time and found it "somewhat sourish," and nearby seized a Spanish ship. Off Arica his ships encountered terrible "arenales" (sand-laden winds) and two strayed from touch with the flagship. Bad weather persisted until June 13, when "the Spanish pilot was for ill demeanures, by publike sentence, cast overboard. A prosperous wind happily succeeded."

The exploit of Noort brought many of his countrymen into the Pacific, and from the beginning of the seventeenth century Holland sent out scores of fine navigators. Spilbergen came through the Strait in 1615, and it was a Dutchman, Willem Cornelius Schouten of Hoorn, sailing here in the same year, with Jacob Le Maire of Amsterdam, who found and named many islands south of Tierra del Fuego, as Staten, Maurice, Barnvelt, as they also named Cape Hoorn and Le Maire's Strait. The famous Jacques l'Hermite came through and up the coast in 1623–4; and by these southerly passages also came five ships of a Dutch expedition in 1642–3, of which Hendrick Brouwer or "Brewer" left an account.

The Narborough Expedition

In 1669 it occurred to the English Crown that better information concerning Patagonia and Chile was desirable, and the experienced Sir John Narborough was sent out with two ships in 1669. The *Sweepstakes*, of

300 tons, had 36 pieces of artillery; the *Batchellor*, pink of 70 tons, had four pieces; the crew totalled one hundred. They were well provisioned and carried plenty of beads, hatchets, etc., to trade with the natives of the southerly channels, the design of the voyage, which was at the king's private cost, being "to make a discovery both of the seas and coasts of that part of the world, and to lay the foundation of a trade there." Narborough was enjoined not to go ashore before he got south of the Plate River, and not to interfere with any Spanish settlements; Port Desire he considered beyond Spain's jurisdiction, formally taking possession in the name of Charles II. He thought better of Patagonia than Darwin, nearly two hundred years later, for he recorded that the soil was marly and good, that in his opinion it might be made excellent corn-ground, being ready to till, and that "tis very like the land on Newmarket Heath." He noted that the Indians seen in this region had dogs with them, with grey coats and painted red in spots.

Reaching the eastern entrance of the Strait on October 22, he anchored just outside the first Narrow at night, and passed the white cliff of Cape Gregory next morning; when he went ashore at Elizabeth Island natives came to him, but did not recognise the gold and copper he showed; and although "my Lieutenant Peckett danced with them hand in hand" and obligingly exchanged his red coat for one of their skin-coverings, while Narborough showed them "all the courteous respect I could," shortly afterwards he had reason to suspect them of planning to sink his skiff. They too had dogs, but no other domestic animal, and the sailor decided that they were but brutish, and gave up hope of friendship or trade. He passed "Sandpoint," named Freshwater Bay, and six leagues to the

south reached "Port Famen," where drift-wood lay as thick as in a carpenter's yard.

"A little within land from the waterside grow brave green woods, and up in the valleys large timber-trees, two foot throughout and some upwards of 40 feet long, much like our Beech-timber in England; the leaves of the trees are like green birch-tree leaves, curiously sweet . . . there are several clear places in the woods, and grass growing like fenced fields in England." He caught plenty of fish, noticed the spicy Winter's Bark and used it to stew with his food, but could find no traces of minerals in the soil. The Indians here took the knives and looking-glasses Narborough gave them "to gain their loves," but, he records, refused brandy. Sounding and taking careful observations as he went along, he named Desolation Island, passed out by Cape Pillar, and noted the Four Evangelists (calling them the "Islands of Direction") as guides for the western end of the Strait.

On November 26 he lay off the island of Socorro, in 45° south latitude, and on the 30th found and named Narborough's Island, taking possession "for his Majesty and his Heirs." By this time all the ship's store of bread was exhausted, everyone eating pease; they proceeded to No Man's Land, a small island at the south of Chiloé, and by December 15 anchored at the entrance to Valdivia Bay. Here they sent a Spaniard of the crew ashore, with bells, tobacco, rings and jew's-harps to trade with the natives, and an undertaking to burn a fire at night as a signal. No fire was seen and apparently Narborough was never able to discover what became of him. The lieutenant gathered green apples from the thick woods close to the water's edge. Next morning the lieutenant in his boat, rowing by the shore, came suddenly upon the

Spaniards' small fort of St. James, was invited to land by the Spanish soldiery, and noted that the fort was strongly palisaded against Indian raids, and that the Spaniards used "very ordinary" match-lock musquetoons. The officers received the English sailors courteously, sitting "on chairs and benches placed about a table, under the shade, for the sun shone very warm, it being a very fair day," the captain calling for wine in a silver bowl and firing five of his guns in salute. He asked for news of wars in Europe, said they had much trouble with the valiant and barbarous Indians, who fought on horseback and infested the camp so closely that the Spaniards never entered the thick woods nor went more than a musket-shot's distance from the palisades. A fine dinner was served upon silver dishes, and it was suggested that four Spaniards should go back to the English ship with the lieutenant, and pilot her into the port. But Narborough remembered the old tale of "treacherous dealings with Captain (John) Hawkins at St. Juan de Ulloa," and although he listened attentively while they talked of the gold they found here and troubles with the natives, and the great trade the Pacific coast had with the Chinese by way of the Philippines, he declined to take his ship in, and said he only wanted wood and fresh water. On December 17 he sent eighteen men ashore to barter merchandise with the Spaniards, many courtesies being exchanged. Four of the Spaniards' wives, "very proper white women born in the kingdom of Peru of Spanish parents," who had never been in Europe, insisted on sitting down in the ship's boat, "to say that they had been in a boat that came from Europe." Other Spaniards had Indian wives, all being finely dressed in silks, with gold chains and jewelled earrings. The English were then asked to go

to Fort St. Peter, two miles inside the bay, where the Governor of Valdivia received Lieutenant Armiger and his companions politely, accepting their presents and offering them wine; but when they asked for a cask of water he sent soldiers and seized the boat, also taking the Englishmen prisoners, saying he had orders from the Captain General of Chile. A letter from Armiger to Narborough, sent next day, stated that "myself and Mr. Fortescue are kept here as prisoners, but for what cause I cannot tell; but they still pretend friendship and say that if you will bring the ship into the harbour you shall have all the accommodation that may be. Sir, I need not advise you further." This was the last we hear of him, for Narborough could not obtain his release and sailed away a few days later. Three men were with Armiger — John Fortescue, Hugh Cooe the trumpeter, and Thomas Highway, a Moor of Barbary, who spoke good Spanish. Returning through the Strait, the expedition reached home in the middle of 1671, sighting the Lizard on June 10.

Narborough's careful and seamanlike observations, his sailing directions, record of soundings, etc., as well as his acute notes upon South Chile, were the first explicit details published in England of the condition of this region in the seventeenth century; the book was the manual used seventy years later by the crew of the *Wager's* longboat.

Narborough thought that advantageous trade might be made in South Chile if "leave were granted by the King of Spain for the English to trade freely in all their ports and coasts; for the people which inhabit there are very desirous of a trade: but the Governors durst not permit it without orders, unless ships were to go thither and trade per force and not take notice of the Governors." And as Spain continued to follow the

policy of exclusion, and open hostilities recurred, this was what happened, until before another fifty years had passed the authorities were either taking part in the smuggling that went on or trying to shut their eyes to it.

Sharp and Dampier

The next English stranger upon Chilean coasts was the pirate Captain Bartholomew Sharp, raiding up and down all the West Coast in 1680 in boats that he built in Panama, and sailing southwards "as far in a fortnight as the Spaniards usually do in three months," says Basil Ringrose. They made for the "vastly rich town of Arica," took a couple of vessels on the way, but finding Arica roused and the country in arms against them, took Ilo, and proceeded south to plunder Coquimbo. Hence they sailed for Juan Fernandez Island. The crew deposed Sharp and elected Watling as the commander, and presently sailed back to Iquique with minds still fixed upon the riches of Arica. On a second attempt at this port Watling was killed; Sharp was reappointed, and the buccaneers went to Huasco for provisions ("for fruits this place is not inferior to Coquimbo"), and after raiding off the Central American and Mexican coast, returned to England. They intended to traverse Magellan Strait, but must have rounded the Horn, for to their surprise no land was encountered until they found themselves in the West Indies. Their story encouraged Davis to the plundering of Coquimbo in 1686.

Between this time and the arrival of Anson, one of the most interesting of the raiders in the South Seas was Dampier, who was an adventurer of great experience and resource. The sailing-master in one of the vessels of Dampier's expedition of 1703 was Alex-

ander Selkirk. This Scot had a quarrel with Captain Stradling, and was put ashore at Juan Fernandez, where the corsairs usually assembled to get fresh water and to repair their vessels. It is said that before the ship left he asked to be readmitted, but was refused. He lived alone on the island for a period of four years and four months, and was eventually rescued by Woodes Rogers, captain of the *Duke* privateer, on February 12, 1709. Dampier, curiously enough, was then acting as Rogers' pilot, and must have been interested in the adventures of the original of Robinson Crusoe.

Captain Betagh

A narrative of uncommon interest is that of Captain Betagh, an Irishman with an observant eye and a lively pen, who, raiding in the company of Captains Clipperton and Shelvocke upon the West Coast in the year 1720, recorded his adventures in a racy tale.

The *Success* and the *Speedwell* carried King George's commission, a state of war existing between Spain and England, and the legality of their privateering was so far recognised that when a number of the British, including Betagh, were caught and sent prisoner to Lima, no charge against them regarding attacks upon coastal towns was made, and the only serious accusation was that, early in their cruise, a Portuguese and therefore friendly vessel had been seized and a quantity of money taken. The two vessels, of which the larger did not exceed 170 tons burden, sailed south down the Eastern Coast of South America late in 1719, encountering such bad weather off Tierra del Fuego that they were greatly delayed. Many of the crew died and the rest were reduced to eating mussels and wild celery found on the forbidding shore. The vessels missed a

rendezvous at Juan Fernandez, and Captains Clipperton and Shelvocke raided separately up and down the West Coast in an extraordinary series of adventures. Three Spanish men of war came out after them, as well as after the French "interlopers," but the seas were wide and the little privateers besides being fast were manned by hardy British sailors, while most of the Spanish vessels were obliged to carry Indian or Negro crews. A number of small vessels were taken, but one prize brought misfortune; the prize crew put aboard was overpowered by the original crew, the ship run aground, and the handful of British sent prisoners to Lima. Not long after, Betagh was sent to cruise in the *Mercury*, a little fruit bark seized off Paita. In this unlikely vessel he actually succeeded in taking two prizes, exchanging into the second, an old English-built pink full of peddler's goods running between Panama and Peru. But the pink was chased by the Spanish warship *Brilliant* and overtaken, luck, however, remaining with Betagh when the Admiral proved to be Don Pedro Miranda, who had been a former prisoner of Sir Charles Wager and so well treated by him that not only did the Spaniard treat his English prisoners kindly, but brought Betagh to his own table and toasted the gallant Wager at every meal.

Reversals of fortune of this kind were not unusual, and no doubt bred tolerance; another example was occurring in the Pacific at almost the same time. Clipperton, taking the *Prince Eugene*, found aboard the Marquis de Villa Roca with his wife and child. On a previous voyage Clipperton had been taken before this official in Panama, and the terms now arranged were not made harsher by resentment. The antagonists recognised the fortune of war.

Betagh, with a surgeon and sergeant of marines, was

set ashore at Paita, whence they were sent by the usual route of the coast peddlers to Piura, and later to Lima. Here the venerable Archbishop Diego Morsillo, the Viceroy, refused to proceed harshly against the prisoners in the matter of the Portuguese *moidores*, and "would sign no order for the shedding of innocent blood." Betagh was permitted to live with one Captain Fitzgerald, a native of St. Malo, who offered agreeable hospitality. Another group of Clipperton's men, taken and also brought to Lima not long after, yielded to suggestion and became converts to Roman Catholicism, with merchants of Lima standing as godfathers. Apparently the Limeños were not disposed to severity towards these brands wrested from the burning, for when an assortment met at a public house kept by one John Bell to confirm their baptism with a bowl of punch, and became so dimmed of vision that they knocked down and smashed the image of a saint in mistake for an aggressor, the Inquisition released them after a five days' cooling of their heads. Nor was the action of the authorities anything but strangely lenient when the same precious converts were caught out in a more serious business. Headed by one Sprake, they formed an audacious plot to seize a ship at Callao, and, to get money for firearms, had the effrontery to beg for alms in the Lima streets as "poor English newly baptised." Discovered, they were all jailed for a time, but presently released with the exception of the ringleader, with whom the Government was "greatly provoked."

Betagh himself was permitted to work his way home in the Spanish ship *Flying Fish*, and returned to London in October, 1721. His book, written soon after he returned, is a valuable companion picture to that of Byron: both were straightforward narrators of the

experiences upon the West Coast of young naval officers engaged in their duty of "cruising upon and annoying the enemy" in the closed waters of the South Seas, at a time of extreme interest in world affairs. Betagh's descriptions show that he had an eye for scenery, as when he said of Coquimbo that it "stands on a green rising ground about ten yards high, which nature has formed like a terrace, north and south in a direct line of more than a mile. The first street makes a delightful walk, having the prospect of the country round it and the bay before it. All this is sweetly placed in a valley ever green and watered with a river which having taken its rise from among the mountains, flows through the vales and meadows in a winding stream to the sea."

The Loss of the "Wager"

Spain being again at war with England in 1740, Commodore Anson was sent to the Pacific, as Vernon to the Atlantic, colonies of Spain on exactly the same principle as had prevailed in Elizabeth's day — to touch the enemy in one of his tenderest spots.

The authority under which they sailed was not questioned; the rule of conduct on both sides was that of the "gallant enemy." Britain's Caribbean possessions date from that series of raids.

Lord Anson sailed from England in September, 1740, with the flagship *Centurion*, and the warships *Gloucester*, *Pearl*, *Severn*, *Tryal* and *Wager*, with two store-ships. The mission of the fleet was to harry the Spaniards in the Pacific, and the route was round the Horn. But when Anson reached Juan Fernandez Island in June, 1741, but three vessels remained, and his available crew was reduced from 1000 to 335.

Nevertheless he harassed the coast, and captured Paita; but was forced to sink two unseaworthy vessels, collecting the remainder of the crew on the *Centurion*, and remained cruising about the Pacific until in June, 1744, he took one of the treasure-ships on her way from Mexico with enormous wealth on board, and sailed home with the spoils. He is said to have brought back more than a million pounds' worth of gold, and to have entered port with a big golden Spanish candlestick tied to every yard-arm of his ship.

Of the *Wager's* fate Anson did not know for several years; this vessel was cast away on an island off South Chile, a number of the crew escaping in various ways. The loss of the *Wager* and the subsequent fate of her crew not only forms a moving and almost incredible story with which Chilean colonial life is interwoven, but had a lasting effect upon international maritime law. For, following the desertion of the captain by the insubordinate leaders in the *Speedwell* longboat, an act of Parliament was passed which made such conduct mutiny in the eyes of justice. Until that time the pay of a crew ceased when their ship was wrecked, and they then had no employers nor commanders and the officers, in consequence, were without technical authority, although in practice this control was almost invariably conceded.

The *Wager* was an old East Indiaman. She set sail deeply laden with repairing gear and stores for the squadron, and was in no condition to withstand the fierce buffeting of the South Seas. She lost a mast after passing Le Maire Strait, failed to regain touch with the squadron, and while hastening in the teeth of terrible weather to reach the rendezvous at Socorro Island, south of Valdivia, she was wrecked off a desolate island lying between 47 and 48 degrees of south lati-

tude. The names of Wager and Byron Islands, in the south of the Gulf of Peñas, commemorate the shipwreck and struggle for life of the survivors, and the name of that single-hearted and clear-headed midshipman, young John Byron, who wrote an account of the affair forty years afterwards, when he had become a Commodore of George IV's fleet.

The wreck occurred on May 14, 1741. About 140 men of the crew and marines, the captain and officers, got ashore, were able to save a certain amount of salt pork, flour, wine, etc., from the *Wager*, but found nothing on the island that could serve as food but wild celery, the shell-fish of the wave-battered rocks, and a few sea-birds. Indians who visited them occasionally, almost as badly off as themselves, bartered a few mangy dogs and, once, three sheep, for ship's merchandise, but both shelter and food were insufficient; rains and violent weather were continual, and to make matters worse quarrels broke out, a party withdrawing themselves from the authority of the captain, who alienated many others when he shot a turbulent midshipman. Forty men were dead, from drowning or their sufferings on the island, before a means of escape was ready with the repair and lengthening of the *Wager's* longboat. In this little vessel Captain Cheap proposed to make his way north until he could fall in with and seize a coasting ship of the Spaniards, a capture which would permit him to search for and rejoin Anson's squadron. But the disaffected crew, led by the carpenter and gunner, who had borrowed and taken to heart the book of Voyages of Narborough, now declared their intention of going south and making for Magellan's Strait. The captain objected, was made prisoner, and at the last moment was left behind, with a lieutenant of marines and the surgeon, when the ringleaders realised

the scant accommodation of the *Speedwell*. Byron, who had gone on board believing that all the survivors were being taken off, returned to his captain, with a few other men, in the barge. They had nothing to eat but seaweed, fried in the tallow of candles, and wild herbs; there were no more shell-fish, and all the party were extremely weak; but the captain decided to attempt a northward journey and the starving men began to mend as well as they could the barge and little yawl left to them. A number of the first deserters from the nearby lagoon now rejoined them, and a total of twenty finally embarked on December 15. Encountering rain, cold and adverse winds, they crawled along the rocky, wooded and broken coast, frequently being forced to lie upon their oars all night, since the heavy breakers prevented a landing for rest and shelter. The yawl was sunk when they tried to round the headland of Tres Montes Peninsula, and hereabouts they were forced, since the barge could carry no more, to leave on shore four marines, giving them arms and what other provisions they could; these plucky men stood to watch the barge out of sight, giving three cheers and calling out "God Save the King." With that gesture they disappeared from history, for when the barge had to put back again, and search was made for the marines, no trace was found but a musket thrown upon the beach.

Now and then they found a seal, and feasted; or berries, and lived for days upon them; and after two months of incessant struggle were driven back to the scene of the wreck. Here they were in the utmost extremities, and all must have died of starvation had not an Indian chief from the Chonos Islands, in contact with the Spanish and bearing the wand of office, visited the place a fortnight later. To him they offered

the barge if he would conduct them to a Spanish settlement, and a few days later the thirteen English and the Indian "Martin" with his servant embarked, steering north. Some days later six men took the barge and deserted, and thenceforth the party made their way in an Indian canoe, with frequent portages, through the broken and inhospitable Chonos country. Byron speaks warmly of the kindness shown by Indian women to him, and his notes upon the country and the customs of the wild folk are of great interest; but the journey was terrible, and the surgeon soon succumbed of starvation. The only person to whom the Indian men showed respect was Captain Cheap, whose nature had become "soured," as the loyal but plain-spoken Byron permitted himself to remark, and who was careless of the misery of his companions. Starving and in rags, covered with vermin, and exhausted with the constant work of rowing, they arrived at length at an island ninety miles south of Chiloé, and traversed the final stretch of water in the crazy canoe. Once upon Chiloé their worst wretchedness was over: the Chilote Indians "vied with each other who should take the most care of us," fed them well, laid sheepskin beds by a blazing fire and went out at midnight to kill a sheep for their food. Next day women came from far and near to see the shipwrecked strangers, each bringing "a pipkin in her hand, containing either fowls or mutton made into broth, potatos, eggs or other eatables," and Byron says that they did nothing but eat for the best part of the day, and in fact, all the time they stayed upon the island. The Spanish corregidor at Castro sent for them, and a formidable escort of soldiers with drawn swords, led by four officers, solemnly conducted them to the town, where their appearance made a great sensation. They were imprisoned

Last Hope Inlet (Ultima Esperanza).
Channel in the Territory of Magellanes.

in a Jesuit college for a week, and then taken to the Governor, being treated with consistent goodwill; when, some time later, this official, a Chilean-born, made his usual tour of the island he took his English prisoners with him. During the second sojourn in Castro young Byron was offered the hand of the pretty and accomplished niece of a rich priest; but excused himself, although sorely tempted by an offer of a piece of new linen to be made up into clothes to replace his rags. On January 2, 1743, the party were embarked upon a Spanish vessel bound for Valparaiso; the ship was country-built, of 250 tons, and was 40 years old, carrying a Spanish captain and Indian seamen. At Valparaiso they were put into prison, and would have fared badly but for the native kindness of the Chileans, who brought them food and money, their jailer spending half his own daily allowance to buy wine and fruit for them.

When the President of the Audience in Santiago, Don José Manso, sent for them to the capital, they went with a mule-train over the beautiful hills and plains, and, arriving in the city, the four officers (Captain Cheap, Hamilton, Campbell and Byron) were permitted to live in the house of a Scots physician, Patrick Gedd. Of the next twenty-four months Byron speaks with the appreciation of all travellers to whom Chileans have opened their hearts. Nor, indeed, were the Spanish officials unfriendly, for as it happened several Spaniards who had been taken prisoner by Anson in the *Centurion*, and set free, came to Santiago, and spoke warmly of the excellent treatment they had received.

Santiago, after the miseries of the Golfo de Peñas, appeared delightful to the young midshipman; he speaks of *tertullias* and bull-fights, country excursions, the fine fruit and agreeable women, and altogether he

seems to have given and received such pleasant impressions that one must regard him as one of the first British diplomatic agents to Chile. The fact that the *Wager* had come on a hostile expedition, although the hostility was directed against Spain, perhaps added a shade of romance. When the party had been two years in Chile, the President gave them permission to embark in a French ship bound for Spain, and on December 20, 1744, Byron, Hamilton and Captain Cheap (Campbell electing to remain in Chile) set sail in the *Lys* frigate, the same vessel in which the distinguished Don Jorje Juan also travelled. Calling in at Concepción, or rather the port Talcahuano, they joined three other French vessels, the *Louis Erasme, Marquis d'Antin* and the *Delivrance*. The *Lys* now sprung a leak, returned for repairs to Valparaiso, while the three other vessels, proceeding, fell into the hands of English men-of-war.

The *Lys* put to sea again on March 1, 1745, after experiencing an earthquake in Valparaiso Bay, and rounded Cape Horn; was chased by English ships near Porto Rico, but got away to Santo Domingo. Thence they sailed again in August, sheltered by a French naval squadron of five ships, and finally reached Brest at the end of October. Here of course, with France and England now at war, the three Englishmen were prisoners, but were shortly allowed to cross to Dover. Byron's money only allowed him to hire a horse for the London road; he had to ride hard through the turnpikes to escape payment and could afford no food. When he reached London the house of his family, of whom he had not heard a word for over five years, was shut, and it was only through remembering a nearby linen-draper that he got the address of his sister and hurried to her house in Soho Square, where the

porter tried to shut the door upon his "half-French, half-Spanish figure."

The narrative published in London in 1743 by John Bulkeley and John Cummins, respectively the gunner and carpenter of the *Wager*, tells the story of the long-boat and cutter and of the eighty men who went south in those two craft. Bulkeley and Cummins seem to have been as bold and wordy a pair of sea-lawyers as ever trod a deck, and one cannot but sympathise with the lieutenant who represented them "in a very vile light" on their return home; but the relation has its place in history, carefully doctored as the journal of events appears to be.

Setting out on the morning of October 14, 1741, the longboat *Speedwell* carried fifty-nine men, the cutter twelve and the barge ten; the latter returned northward on the 22nd, and the cutter was destroyed among rocks early in November, with the loss of a seaman. The *Speedwell* was now alone, with seventy-two men in her, facing the cruel gales and the cold south as she crept with sail and oar towards Cape Pillar. On November 8, eleven men, exhausted with the struggle and seeing the boat overloaded, were set ashore at their own request, after Bulkeley had made them sign one of the documents which no dangers nor trials made him omit. On the 10th they believed that they identified the four Islands of Direction spoken of in Narborough's book, by which they sailed, but lost their way when within the channels and suffered terribly from cold, rain and hunger, three men dying of starvation on November 30. In order to ascertain their true position they decided at length to return west to Cape Pillar, found it on December 5, and turned east once more. Now and again they found Indians who traded dogs to the starving crew, who thought the flesh "equal to the best mut-

ton"; two more men died of want on the 8th and 9th and although droves of guanacos were sighted off the Narrows, they could not shoot any. A month later there were but fifteen men in reasonably good condition, but they had managed to row and sail the boat out of the Strait, were off the Patagonian coast, and were able to kill seals and get fresh water. On January 14 a party went ashore for food, and heavy seas drove the *Speedwell* from the coast, eight men being left behind; this was about 200 miles below Buenos Aires. On the 20th they were seen and given food by cattlemen on the Uruguayan coast, and reached Rio Grande (do Sul, in South Brazil) on the 28th. Several other men had died on the northward journey, and the survivors were starving when the hospitable people of Rio Grande opened their houses to them.

Here they remained until March 28, when Bulkeley, Cummins, and eleven others got a passage to Rio, while Lieutenant Beans tarried with the rest of the men for the next north-bound ship. From Rio the first party got on board a ship bound for Bahia and Lisbon, transhipping thence for England and arriving at Spithead on January 1, 1743. Before then, however, the Lieutenant and his men had reached home, on board an English vessel, and the Lords of the Admiralty awaited the sea-lawyers with a score of grim questions as to mutiny, desertion, etc., and with little regard for the romantic tale of the longboat. But as the record of a journey made in an open boat amongst the cruel rocks and currents of the Magellanic region, the story is probably unparalleled.

Juan and Ulloa

Amongst "Strangers on the Pacific Coast" during the eighteenth century should also be included the two

Spanish naval officers, Don Antonio Ulloa and Don Jorje Juan, who left such valuable records in their "Voyage to South America" and in the highly illuminating "Secret Notices" presented to the King of Spain which were not published until many years later. Their place here is due to the fact, as they emphasised in the "Noticias Secretas," that by this time Spain and her colonies had grown far apart in feeling. A native-born white population of "creoles," as well as a large undercurrent of mestizos and some mulattos, had grown up, and the stream of Spanish-born who came to the country were frequently out of sympathetic touch. Spain felt this, and the commission of inspection and report which the King added to the two officers' original duties shows how far the West Coast was still an unknown country.

Ulloa and Juan's visit (1735–1745) was the result of the determination of the French Academy to settle the question of the shape of the earth by measuring two arcs, one upon the equator line and the other as far north as it was possible to travel. Asia and Africa offering no safe or conveniently approached region near the equator, the Academy applied to Spain for leave to enter the province of Ecuador for this object, while a second party went to Lapland. Consent was given, but with the proviso that Spanish officials should accompany the expedition, and eventually choice fell upon Captains Antonio Ulloa and Jorje Juan, naval officers already distinguished for their mathematical ability.

La Condamine had not completed his laborious task in the highlands of the equator when news of Anson's naval plans reached Peru, and the Viceroy sent hastily to Quito for the two Spanish captains to aid in the defence of the coast. From late 1740 to December,

1743, these duties occupied Ulloa and Juan, when they returned to finish certain measurements above Quito. During the interval they travelled in Peru and Chile, and the observations they made shed much valuable light upon colonial conditions.

With scientific work at an end in 1744, the two officers prepared for return, embarking at Callao in separate ships — Juan in the *Lys* and Ulloa in the *Deliverance* — so that the chances were increased of one of them reaching Spain safely, war having broken out between France and England as well as continuing between England and Spain. The *Deliverance*, however, was caught by English men-of-war when she sailed into Louisburgh Bay, Canada, unaware that the port had fallen. Sent prisoner to England, Captain Ulloa arrived at the end of 1745, and in London received the greatest marks of respect from scientific men of the day, including the President of the Royal Society, of which body he was made a member.[1] He was assisted to recover his impounded notes and scientific papers and was then permitted to return to Spain, in July, 1746. His brother officer had arrived, in the *Lys*, at the end of 1745.

By the middle of the eighteenth century, the time had passed when Spain could continue to exclude foreigners from South America. She had given way to demands for strictly limited trading, and the door could not again be shut.

Since the colonies of Spain wanted the blood and technical skill of young Europe, and young Europe constantly roamed the earth for wealth and adventure, no edicts or penalties could prevent a constant infiltration

[1] Fellowship of the Royal Society was also extended to Captain Juan and both were elected members of the French Academy.

of adventuring persons upon the West Coast. Likely young white men have, indeed, seldom been denied a welcome in new countries and whatever the Spanish authorities might say the growing native-born populations of Chile continued to beckon.

Resident Foreigners

From time to time orders were issued that foreigners should be turned out of Chile; for instance, in April, 1769, the Town Council of La Serena (Coquimbo) promulgated a royal edict that foreigners were to leave the country within thirty days under penalty of the confiscation of their property. However, this applied only to persons engaged in trade, mining, or the legal profession, and to travellers, while such useful individuals as locksmiths and blacksmiths, tailors, bakers, cooks, mechanics, physicians and surgeons, were permitted to remain. Two Englishmen, Murphy and Denton, were among the persons told to leave the town, while a couple of Italians, a Frenchman and Portuguese also fell under the ban. It is doubtful whether the edicts were more than temporarily pressed or obeyed, for as a matter of fact many foreigners lived upon excellent terms with the local authorities, and, liking their surroundings, were equally well regarded. Thirty years before this particular edict was issued, and which applied to all important Chilean towns, there was living in Santiago a prosperous Scots physician, who was on sufficiently good terms with the Governor of Chile to obtain the keeping of the three English prisoners from the *Wager*.

Anglo-Saxon names in Chile, as a glance at any Chilean town directory shows, are too many for a satisfactory survey of their origin to be made in a few

pages. But the result of this amicable invasion is strongly witnessed by the characteristics and qualities of the modern Chileno.

Some of the families have immense ramifications, and there are so many interlockings that a member of a good Anglo-Chilean family is likely to possess cousins throughout the republic, as well as in the United Kingdom and possibly also in North America. There are, for instance, the branches and connections of the Edwards family, descendants of that George Edwards who came to Coquimbo on a British ship in 1804, left it, and married the Señorita Isabel Osandon, whose father was of Irish descent. Agustin, one of the three sons of this marriage, founded the Banco de A. Edwards, whose original headoffices were in Copiapó, the once-splendid copper mining centre. The same Agustin Edwards promoted the Copiapó railway, married into the great Ross family, and was the father of the distinguished Chilean Minister at the Court of St. James, Don Agustin Edwards.

By a royal edict of 1808 all foreigners in Chile were listed, the count resulting in a total of 79, among whom were 16 Britons and 9 North Americans. This number is probably far below the correct figures, the presence of such persons being still illegal according to Spain. It was not until 1811 that permission was given for the brig *Fly* to bring a cargo of merchandise to Chilean ports — similar permits having previously been given only to the French, when politically associated with Spain. John and Joseph Crosbie were the chief adventurers of this shipload, and the bales of cotton and woollen cloth, the hardware and tools of British make, were sold at such good prices that the supercargo, John James Barnard, presently returned with the *Dart*, equally laden. On board was Andrew Blest

of Sligo, and both he and Barnard remained and married in the country.

Strangers and Independence

With the first dawn of the struggle for independence in the Spanish colonies of the New World, help came promptly from across the Atlantic. The political aspect, promising a definite cessation of the anxieties and restrictions that harassed Europe and offering the counterbalance to which Canning trusted, was a matter for statesmen; but it was the appeal to the spirit, the call for help towards freedom, that touched popular imagination and sent thousands of British volunteers across seas. Many of these men died; some returned home; and a large number remained in Latin America to form links that have proved invaluable on both sides of the world.

The money sent to Spain's lost colonies in early days set the new-born countries upon their feet economically; the soldiers who flocked to Bolivar's standard in northern South America turned the scale of battle on more than one occasion — the gallant Irish Legion is still commemorated in Venezuela and Colombia; but it was to the Pacific that the largest number of volunteers went, for not only were the armies of San Martín strengthened by fighters, many of whom had seen useful service in Peninsular campaigns, but the effect among seamen of the entry of Admiral Cochrane into the conflict was that of a magnificent example to be followed with enthusiasm. Cochrane created Chile's navy; many of the British officers who followed him remained in Chilean naval service, the link between the British and Chilean navies being sustained by the descendants of these sailors as well as, officially, by

the instructors traditionally lent by the British Admiralty.

The first British naval officers to fight for Chile preceded Cochrane by some months. Actually the first Chilean fighting ship was the *Aguila*, captained by Raymond Morris in 1817; Captain O'Brien, commanding the *Lautaro*, a converted East Indiaman, lost his life in April, 1818, when the Spanish blockading ship, the *Esmeralda*, was driven from Valparaiso; Captain Wilkinson, who entered Valparaiso as master of another East Indiaman, the *Cumberland*, loaded with coal, sold her and entered the Chilean navy commanding the vessel, renamed the *San Martín*.

Captain Morris commanded the *Araucana* when in October, 1818, Chile's new little squadron went out to attack the big Spanish man-of-war, the *Maria Isabella*, lying with her transports in Talcahuano Bay, a brilliantly successful exploit. A little later came the former British brig *Hecate*, renamed the *Galvarino* and brought by two British naval officers, Captains Spry and Guise, who also entered Chilean service. About this time also came a number of North Americans, chiefly those brought by José Miguel Carrera from the United States.

Miners, investors, buyers and sellers and shipping men came in the wake of the fighters, and before 1850 there was a strong foreign, and chiefly British, colony at Valparaiso, with other groups at Santiago, Coquimbo, Copiapó and down south at Concepción. The kindly Chilean character, the pleasant climate and lovely scenery, held the hearts of the strangers, a great proportion remaining to identify themselves with Chilean fortunes.

A stream of scientific men and travellers was directed to Chile in the early nineteenth century, per-

forming valuable work and leaving records; the list includes the names of Poeppig, Darwin, de Bougainville, D'Orbigny, Mayen, the two Philippi's, explorers of the Atacama desert, and Humboldt. There was a lady, too, who has a place amongst travellers, artists and writers of the first days of Independence, the gentle and acute Maria Graham, widow of one of Cochrane's officers, who eventually returned to England, became Lady Calcroft and published a perennially delightful book of Chilean reminiscence.

Many explorers of the Chilean southerly regions did good service, for here came the *Challenger*, with a group of scientific men, and later the *Adventure* and the *Beagle*, carrying King and Fitzroy and Darwin; these vessels and the succeeding *Alert*, with Coppinger, performed invaluable surveying work. Inland, a number of such explorers as Musters, Viedma and Conway, preceded the official work of the Holdich Commission. Of recent years, no foreigner has owed more to Chile than Shackleton; after the casting away of his ship and men upon Elephant Island in the Polar Seas, and the failure of three attempts at rescue, it was the loan of the Chilean Government's *Yelcho* that saved a score of gallant lives. But before the end of the nineteenth century the visitor to the Pacific Coast had ceased to be a stranger, and in Chile the newcomer no longer feels himself to be in a foreign land.

CHAPTER IV

THE INQUISITION IN CHILE

Escobar. — Aguirre. — Sarmiento. — European Corsairs. — Decay of Power

The history of the Tribunal of the Holy Office of the Inquisition in Chile follows the familiar lines of the work in other countries, and is chiefly interesting in the side-lights shed upon colonial life. The veil drawn over its acts during its period of activity was only lifted by the discovery, in the Archives of Simancas, of the Inquisitors' meticulously-kept records. The counts against the Tribunal do not include those of suppressing or distorting its own history.

The first great Inquisitor, Torquemada, died six years after the discovery of the West Indies by Cristobal Colón, and, under Pope Adrian VI, a branch was soon established in the island of Española (Santo Domingo), with authority extended to Mexico as early as 1524. It was not, however, until 1569 that the royal cedula of King Philip II opened all the Americas formally to the Tribunal, although for many years previously the local dignitaries of various churches in Spanish America were delegates of the powerful functions of the Inquisitors. As, for instance, when Bishop Loaysa burnt the Flemish heretic Juan Millar at the stake in Lima in 1548; and as in the curious case of Alonso de Escobar.

Escobar was a Spaniard of good family who came to Peru with the first conquistadores; he was a resident

of Cuzco when the two captains of Pedro de Valdivia, Monroy and Miranda, arrived, almost starving, from the camp of their leader to beg help, and he promptly lent 14,000 pesos to buy supplies and aided in raising a new force. He had been twenty-three years in the service of the crown in the New World when somebody happened to hear him say, in the plaza of Santiago de Chile in August, 1562, that he always listened when Father Gil read the gospel, but shut his ears to the moral. Witnesses, old brothers-in-arms, admitted that he said this, but a suggestion that it was a joke, and that the listeners laughed heartily, was received coldly. Escobar added that the Father always abused the residents too much, and that he did not like the dictum that Spaniards who killed Indians would go to hell. But the representatives of the Inquisition found that he was guilty of Lutheranism, that his goods should be confiscated, that he should suffer imprisonment, etc. Escobar protested, asked for a "lettered person" to help in his defence, and the end seemed to be reached when the Fiscal reduced the sentence to the payment of costs. But the militant Father Gil objected to aspersions upon his loyalty made in the course of the trial, and a series of quarrels followed, resulting in the excommunication of the judge, another priest, and the lawyer Molina. When the scandal took, presently, the form of a contest between different ecclesiastical Orders, we find a new list of twenty-five excommunicated persons, including the Lieutenant-Governor, a bishop-elect, a number of friars, and a couple of Negros. When the monks set upon and beat a notary, the brother of Molina assaulted a monastery, and later Molina, imprisoned, escaped and fled to Concepción, while most of the other disputants carried their loud complaints to Lima.

The case of Francisco de Aguirre is more tragic. A trusted captain of Valdivia's, he was the founder of La Serena (elder sister of Coquimbo) and was afterwards in charge of the expedition sent across the Andes and into the present Argentina, by way of Tucuman and Santiago del Estero, the most cruel desert that even these hardened explorers had encountered. As the wretched party made its way towards the Spanish settlement already existing on the Atlantic border, at La Plata, mutineers seized Aguirre one day, and, apparently not daring to kill him, pretended that they acted for the Inquisition. To the Bishop of La Plata they presently handed him over, and as this worthy thought that the newly discovered provinces might as well be governed by a protégé of his own, he kept the conquistador in jail while formal charges were arranged. At the end of three years ninety counts against Aguirre's Christianity had been made: amongst them, the accusation that he had said that if he ruled over a republic where there lived a cleric and a blacksmith, and he was obliged to exile one of them, he would send away the cleric. He had also said that little men might fear excommunication, but he didn't; and that he was not convinced of the efficacy of prayer, because he once knew a man who prayed much and yet went to the nether world. He was sentenced, in addition to the imprisonment, now declared just, to do penance in Tucuman church, and to pay a fine of 1500 *pesos ensayadas*. Probably to save trouble, the old soldier agreed to confess his guilt and to do penance, and was able to secure the privilege of performing it in La Plata, instead of Tucuman, by the payment of another 500 pesos. The authorities then wrote to the King an account of the case, and suggested that Aguirre was no fit person to rule Tucuman. But before this

letter reached Spain a royal order had arrived in La Plata, appointing Aguirre as Governor of the provinces he had discovered, and as soon as he could equip a small expedition of 35 men who came to his banner the pioneer set out. He had not gone far when the Bishop sent a priest after him, ordering him to return to face new charges. Aguirre answered that now he was in "tierra larga" — open country — and going up to the cleric and looking him straight in the face, he asked him, "If I killed a priest, what punishment should I get?" With blanched face and hurried feet the cleric went back. But the troubles of Aguirre were not over. The hand of the Inquisition was still over him. He was eventually processed again, imprisoned for five years, deprived of the remainder of his fortune and of his Governorship, and when released made his way back to the beautiful bay where stood La Serena of his own foundation. He had lost three sons, a brother and three nephews, in the King's service, was a valiant and loyal pioneer, and died poor and lonely through the Tribunal's enmity.

The continuous petty persecution of another great pioneer, Pedro Sarmiento de Gamboa, forms a curious chapter in the story of the Inquisition, but in this case the protection of the Viceroy Toledo, and the strong character and invaluable services of the man attacked, outweighed the views of the Inquisitors. Sarmiento's historical studies, surveying and sea-discoveries in South Chile give him high rank among the Spaniards in the New World, but his scientific bent was heretical in the eyes of the Church. The event bringing Sarmiento under the suspicious eye of the Inquisitors was the death of the Viceroy, the Conde de Nieva, murdered in a street in Lima in February, 1564. His successor Lope de Castro was active in the investigation of the

mysterious affair, and Sarmiento, who had been an intimate of the house, was presently accused, not of complicity, but of knowledge of witchcraft. He had talked to a woman servant of the dead Count about a magic ink which made the writer of a letter beloved by the recipient: he had two rings engraved with astrological characters. Sarmiento's confessor had seen and guaranteed the harmlessness of the rings, but this did not save him from a sentence of naked penance in Lima cathedral, banishment from the Indies, and, until his departure, imprisonment in a monastery. Sarmiento complied with the penitential part of the decree, but appealed to the Pope and obtained a commutation of the banishment order. A few years later his discovery of the Solomon Islands added so much to his renown that upon the arrival of the new Viceroy, Francisco de Toledo, in 1569, Sarmiento was received with great distinction, accompanying the ruler's official visit throughout Peru and subsequently writing a History of the Incas. In 1572 the Inquisition again accused him of black magic in connection with the two rings, pronounced him a dangerous person and re-ordained his banishment. At the moment he was fighting against Indian tribes of the Andean forests, and the Viceroy told the Inquisitors that he required his services; but they came forward presently with an accusation that he had foretold deaths by the lines on his hand. He was declared guilty, imprisoned in 1575, and only released upon the insistence of the Viceroy. Sarmiento was no doubt chiefly suspect because he was a scientific man of penetrating mind, and, though his own writings show that he was a devout son of the Church, the fact that he was an author rendered him dangerous. Forty years previously a royal decree (August, 1534) had prohibited shipment to the Indies of any books

other than those dealing with the Christian religion and virtue, so afraid was Spain of any ideas reaching the Colonies. A letter from the King to the Casa da Contratación in Seville protested: "I have been informed that many books of romances are sent to the Indies, profane and foolish histories like that of Amadis and kindred productions; this is a bad practice for the Indians, and the kind of thing which they should not read nor be occupied with." It was with the same perfectly genuine and logical desire to maintain a dead level of thought and conduct that, shortly after the above decree was promulgated, a rule was enforced that no sons or nephews of people who had been burnt alive by sentence of the Inquisition, and no converted Jews, Moors, or other proscribed persons or "New Christians" should go to the Indies.

European Corsairs

The economical as well as intellectual fences put round the New World colonies of Spain were threatened most terrifyingly by the bold raids of corsairs. Preservation of these barriers demanded severe treatment of such persons as were caught in piratical attempts, the Inquisition acting in full accord with the civil authorities when, for instance, in the *auto da fé* held in Lima in 1592, four English sailors captured after the wreck of their ship off the island of Puna (at the entrance to Guayaquil) were paraded. Walter and Edward Tillert were imprisoned for five years before their execution; their companion Oxley was burnt alive after four years in the jails of the Holy Office; but the life of the eighteen-year Morley was saved when he was permitted to be a convert to Roman Catholicism — a grace denied his older associates, as the Inquisitors suspected the

genuineness of the change of heart experienced by men in the shadow of the torture chamber.

John Oxenham, friend of Drake, captured by a curious accident in Panama, was hanged in Lima with several of his sailors, their English heresy adding a useful weapon to the hand of the enemy.

A group of Dutch corsairs was brought before the Inquisition in 1615. These men were taken at the port of Papudo, having arrived with the fleet of Admiral Spilbergen, naval supporter of the Count Maurice of Nassau, whose wise rule was chiefly responsible for the Dutch hold upon North Brazil enduring for thirty years. The Spilbergen voyage is part of the story of Holland's plans for overseas dominions in the Americas, and one of the strokes of fate by which outposts of a nearly-won empire were successively lost.

Possession of the great territory of Brazil by the Portuguese across the Andes, and cheek by jowl with some of the most cherished of the Jesuit Missions, was another thorn in the flesh of the Spanish and a constant cause of complaint by the Holy Office. Records of the Inquisition complain that the Portuguese were responsible for the decay of religious feeling in the Indies: they were tolerant to Jews, allowed many to enter American regions, and themselves took possession of the commerce of the Pacific coast. All the shops and businesses were in the hands of Portuguese or Portuguese Jews, says one complaint, declaring that these shopkeepers refused to sell goods on Saturdays. With all this trouble on account of outsiders, the Inquisition had its hands full with native-born offenders, and did not spare them. There is the case of Father Ulloa and his private sect; and that of two sisters of Santiago who accused their brother of Judaism, and ultimately, after a tremendous process, sent him to the stake. Vicuña

Mackenna relates another story of the debt owing to one Manuel Perez, also of Santiago. This Perez was burnt alive at Lima in 1639, but before his death told the Inquisitors that Martinez Gago of Santiago, a merchant, owed him a few thousand pesos. The Inquisitors sent to demand the money, but, finding that the debtor was already dead, placed an embargo upon the goods of his father-in-law and proceeded against that unlucky man. Then arose a score of other creditors of Gago, among them many influential clergy, and the story proceeds in a tangle of processes, demands by the haughty Comisario of the Inquisition in Santiago and deportations to Lima.

But by the end of the seventeenth century the power and prestige of the Holy Office had begun to wane, a decay due partly to the increase in its ranks of the number of native-born or "creole" officials. Posts had for long been a matter of personal privilege or commerce; but when local men of ambition bought offices almost openly and proceeded to use them as instruments for amassing a fortune, the Inquisition was laid open not only to hatred and contempt but to attack. José Toribio Medina remarks in his *Historia del Tribunal del Santo Oficio de la Inquisicion en Chile* (Santiago, 1890) that as a result of the lowered prestige of the Holy Office, its members began to show "moderation," even "humility," as when the Commissioner in Chile, 1797, humbly asked Governor O'Higgins to help him to secure the person of an accused man, who, living in Chiloé, might find friends to resist the Inquisition. The cases brought before the Tribunal abated to mere charges of witchcraft, and although the Inquisitors formally objected, in 1786, to the scandal of the teaching of jurisprudence, history and chronology by Dr. José Lasterria, they had not been able to prevent the

opening of a school of mathematics in Santiago, in 1759.

The last Commissioner of the Inquisition in Chile was Dr. José Antonio de Errázuriz y Madariaga, a native of Santiago; his Treasurer, Judás Tadeo de Reyes y Borda, was also a Santiaguino who held the additional post of Secretary to the Governor of Chile. The ground was cut from under their official feet when the Congress of 1811 voted that the funds and income of the Inquisition should be used for "other pious purposes," this order being cemented, despite the energetic objection of the Treasurer, when the Spanish Cortes of 1813 abolished the Tribunal in Spain and her colonies. The estates belonging to the Inquisition in Chile were some of the finest of the Central Valley, and were calculated at a value of over one and a half millions of pesos.

Upon the restoration of that extraordinarily short-sighted monarch, Ferdinand VII, the Inquisition was re-erected in 1814, and under this authority Tadeo de Reyes collected about 1500 pesos in imposts, in 1815. This was the last purse of Chilean money handed to the Tribunal, whose final abolition by the Spanish Cortes of March, 1820, was the tombstone of a body that had long lacked any spark of real life.

The existence and acts of the Tribunal appear, in the light of today, grotesque as well as sinister; but it is well to remember that not only was the age in which it flourished a period when life was held cheap and religious passion ran high, but that even in the comparatively emancipated atmosphere of South America the Inquisition was not universally unpopular. On the contrary, the citizens of the Colonies in more than one region appealed to Spain to set up a branch, with a view to correction of the loose life of the ordinary clergy as well as to punish heresy in an untutored pioneer com-

munity. This work was undoubtedly performed with zeal: scores of the Chilean and Peruvian cases taken before the Tribunal had to do with the chastity of the priesthood, and irregular and coarse living on the part of residents. It cannot be said that the work of the Inquisition banished licentiousness from the Colonies, but the way of the sinner was made harder.

CHAPTER V

THE STRAIT OF MAGELLAN

The First Navigators: Magellan, Sebastian del Cano, Loaysa, Alcazaba. — Sarmiento. — The City of Philip. — Cavendish. — Port Famine and Punta Arenas.

THINKING of Chile, one sees a picture of southern orchards and wheat-fields, of cattle pastures, of pine forests; of copper mines in the inhospitable heights of the mountains; or perhaps of the great, burning nitrate pampas of the north. Rarely is a thought given to the southernmost city in the world, Punta Arenas, with its tributary sheep-raising plains, its beech woods and fisheries, coal and gold mines, and its extraordinary rise from misery to immense wealth in the course of a few years.

Nobody, probably, could have wrested wealth from such a region but the people whose attention was drawn to it after the discovery that much-abused Patagonia was a fine sheep-raising region. It was the hardy Falkland Islander, hailing from the islands north and west of the Scottish coast, who made, and speculated on, this chance, invading the plains and grassy hills east of the Andes after he had staked out Western Patagonia, and adding Tierra del Fuego presently to his conquests. He was swiftly followed by energetic traders and by another sheep-herding mountaineer, the Jugo-Slav; between them they have done what the

unfortunate Spanish settlers of Pedro de Sarmiento could not do: they have created a city in the wilderness, strongly-rooted, sturdy, with the spring of life from within.

The tale of settlement of the Straits of Magellan, today an accepted achievement, is built upon gallantry and tragedy. The thriving regions of Patagonia and Magellan Territory have been erected upon the ashes of the most cruel suffering.

The efforts of the Spanish crown to find a way to the golden East by way of the West which led to the discovery of the Strait of Magellan were but extensions of the hunt for Cathay that inspired the greedy fanatic Cristobal Colón. He died asseverating that he had found the coast of the Indies, and although the more level-headed navigators knew better the eyes of Spain continued to be fixed upon a route to the Spice Isles rather than upon the Americas *per se*. Reached from the west, Spain could lay an anti-Portuguese claim by virtue of the famous Bull of Pope Alexander VI of May 4, 1493, which, placing a line 100 miles west of the Azores, acknowledged all discoveries eastward as Portuguese and all westward as Spanish.

Fernão de Magalhães, as Captain-General, with Estevan Gomez as Chief Pilot, sailed in the *Trinidad*, of 110 tons, from San Lucar on September 12, 1519. Four other smaller vessels completed the expedition of discovery — the *San Antonio*, the *Victoria*, the *Santiago*, and the *Concepción*. The latter was commanded by Gaspar de Mendoza, with, as master, Sebastian del Cano, destined to be the first circumnavigator of the globe. Magellan, Portuguese-born, shipped a large number of his countrymen in defiance of the orders of the King of Spain; Sebastian del Cano, a Basque hidalgo, took eight other Basques in the *Concepción*.

Quarrels quickly broke out, and an outbreak off the Patagonian coast resulted in the murder of Mendoza, the execution of Quesada, the marooning of another commander and a too-active priest. The *Santiago* had been lost at the entrance of the Santa Cruz River, and with the remaining personnel and vessels captained to his own liking, Magellan proceeded south.

On October 21 he sighted and named the Cape of Eleven Thousand Virgins, at the opening of the Strait. Here Estevan Gomez, now on board the *San Antonio*, overpowered the captain and persuaded other men equally disapproving of Magellan's actions to turn back; they sought, vainly, the men marooned at San Julian, and sailed back to Spain. Meanwhile Magellan navigated the stormy waters of the Strait, emerged into the boisterous Pacific, made for the Philippines and there was killed in a native feud; the slaughter of thirty-nine others of the expedition made it necessary to get rid of another vessel, the *Concepción*, while the two remaining vessels made their way to the coveted Spice Islands. Here magnificent cargoes of spice were bartered from the Kings of Tidore and Gilolo, and, leaving the leaking *Trinidad* to be careened, Sebastian del Cano after building storehouses for spices at Tidore, sailed on westward in the little *Victoria* and reached San Lucar as the first circumnavigator of the globe.

Del Cano with thirty-five men were the chief survivors, for the *Trinidad* never returned, and only a few of her crew reached Spain years afterwards. It was to find her and rescue the members of the expedition left in Tidore that the second expedition to Magellan Straits was despatched. The great merits of Sebastian del Cano as organizer and navigator were, meanwhile, greatly applauded in Spain, and the coat

of arms granted bore a globe as crest, with the motto *Primus circumdedisti me.*

Portugal was roused by the exciting story of the *Victoria's* feat and her return laden with cinnamon, cloves, nutmegs, mace and sandalwood. To understand the feeling roused it is necessary to remember the extent to which mediæval Europe was dependent upon spices for rendering foods palatable. Sugar was not then in general use, and honey, scarce and expensive, was the chief sweetener. Meat was preserved with salt, and its untempting quality was redeemed by Eastern spices. Puddings were saturated with the same heavy aromatics; wearing apparel and beds were perfumed with them. It is a taste that has yielded before the skill of the distiller and the synthetic chemist, and the general development of a "sweet tooth," but it was sufficiently enthusiastic during the Middle Ages to warrant international disputes.

Following Sebastian del Cano's exploit, therefore, need for a decision as to the ownership of the Moluccas became acute: finally, the King of Portugal and Charles I of Spain arranged the Conference of Badajos to settle the matter, taking the evidence of the best navigators, cartographers and pilots. Meetings began in early 1524, continued for five years without result, and were ended when Charles V sold his claim in April, 1529, to the Portuguese for 350,000 ducats. This sale worked a hardship upon the plucky Spaniards engaged in trying to uphold the Spanish flag in the Islands, for meanwhile a new expedition under the Comendador Garcia de Loaysa, with Sebastian del Cano as second in command, was fitted out to follow the same course as Magellan's to the Spice Isles and to rescue the survivors of the *Trinidad.* They set sail

from Coruña in July, 1524, reached Cape Virgins in January, encountered the usual terrible gales off the Strait, lost a ship, and saw tall Patagonians, dressed in guanaco skins, with headdresses of ostrich (rhea) plumes. They noted the laurel-like leaves of Winter's Bark, with its sweet scent. In bad condition, with the small boats destroyed, they went north to the Santa Cruz River; repaired them, returned to the Strait, and finally got out into the Pacific in May, 1526. Besides the wreck of the *Santi Spiritus* they had now been deserted by two other ships, so that only the flagship *Victoria*, the caravels *Lesmes* and *Parrel* and the pinnace *Pataca* reached the South Sea. Of these, the *Pataca* found her way to Mexico, and the *Lesmes* disappeared.

Broken down by hardships, Loaysa died at sea on July 30; and six days later the great navigator Sebastian del Cano also died. When the survivors reached the Moluccas at the end of the year they had buried 40 men in the Pacific since leaving the Strait, 105 remaining to carry on unsupported contest against the Portuguese in the islands. In 1532, when the abandonment of the Spanish claims was definitely known, the Spaniards surrendered to their rivals and a few survivors did eventually get back to Spain, including the able captain Andres de Urdaneta, whose careful report was made to the king.

The next expedition to the stormy Strait was that of Simon de Alcazaba, a Portuguese navigator in the service of Spain who asked for and obtained a grant of land in what is today South Chile. The territory of which he was nominally made Governor was to commence immediately south of the strip allotted to the Adelantado Diego de Almagro, Nueva Estramadura,

and to extend 300 leagues. Alcazaba's grant included the present Argentine Patagonia, and was called Nueva Leon; the narrative of the Veedor Alonso has been preserved and tells of the misfortune, crime and suffering that seemed to pursue every expedition to the troubled waterways.

With two ships, Alcazaba set sail from San Lucar in September, 1534, reaching the entrance of the Strait four months later; the weather was threatening, so after stocking up with 300 penguins they sailed north to parallel 45, and anchored in the Puerto de Leones, which Alcazaba considered as in the middle of his land grant, and from which he proposed to march overland. They started on March 9, marched some thirty-six miles in inhospitable country "desert and uninhabited, where we found neither roots nor herbs to use as food, nor fuel to make a fire, nor water to drink." The Governor, stout and old, had to turn back with a captain, while the rest went on until having marched 300 miles in twenty-two days, with nothing but desert still in sight, they decided to return to the ships. They had lived on the roots of big thistles, wild celery and fish.

During the return journey two captains, Arias and Sotelo, mutinied, and the expedition straggled back in disorder, losing more than fifty men on the way. Arias and his friends reached the coast first, swam to the flagship, murdered the Governor and pilot, then seized the second ship and robbed both. Quarrels broke out between the two ringleaders, Arias wishing to turn the flagship into a roving privateer while Sotelo[1] preferred to go north and join, at the Plata, the expedition of the Governor Pedro de Mendoza; the loyalists were able to turn the tables on them, retake possession of the vessels, and to appoint new officials. The latter

[1] Founder of the City of Buenos Aires, 1535.

tried and sentenced the mutineers; some were hanged at the yardarm, others thrown overboard with weights round their necks, and others "banished on shore for ten years." At last, with provisions exhausted, they set sail in July for Brazil, reached Bahia, where a ship was wrecked and eighty men killed by the natives, the survivors reaching Santo Domingo in September, 1535. So ended the first Spanish official attempt to colonise the extreme south of Chile.

With the Spice Isles definitely abandoned, the route to the "South Seas" discovered by Magellan was still valuable as offering an all-sea route to the coast of Peru, and the next expedition was sent from Spain at the instance of the Viceroy of Mexico, Antonio de Mendoza, in 1539. At this time, and for many years to come, the chief route to Lima was by the fever and pirate infested Isthmus of Panama, and the vessels seen in the Pacific were brought in pieces and set up, or, later, built of native timber, chiefly at Guayaquil.

The new mission was headed by Captain Alonso de Camargo, who lost his flagship in the first narrows of the Strait; another vessel lost touch, wintered in a bay of Tierra del Fuego, and then sailed back to Spain; Camargo succeeded in getting the remaining vessel through the storms of the Strait, and reached the Bay of Valparaiso at the time when Captain Pedro de Valdivia was pushing south against the Araucanians. But he did not return to Spain, was killed in the Almagro-Pizarro feuds, and the chief result of his journey seems to have been discouraging; for a long time no attempt was made by Spain to use the Strait. Juan de Ladrilleros, sent in 1557 from Chile to examine the Strait from the Pacific side, discovered Chiloé and the Chonos Archipelago and surveyed as far as Cape Virgins. Including the leader, but three men returned to

Valdivia to report to the Governor, Don Garcia Hurtado de Mendoza.

Sarmiento

In 1579 the West Coast was electrified with the appearance of Francis Drake in the *Golden Hind*, and when it was said that he had entered the Pacific by way of Magellan Strait the Spanish determined to fortify and close the passage to all foreign vessels. It was still believed that south of the strait lay a great continent, divided from Patagonia only by narrow waterways.

With a view to shutting the channel, the Viceroy of Peru, Francisco de Toledo, equipped an expedition under the command of Captain Pedro de Sarmiento de Gamboa, to survey the southerly regions and sail through the Strait to Spain. Sarmiento was a fine seaman, with the discovery of the Galapagos Islands already to his credit, an acute observer, good historian, and a tireless and resourceful leader. He remarks, in the beginning of his narrative, that it was then "held to be almost impossible to discover" the entrance from the Pacific side, "owing to the innumerable openings and channels which there are before arriving at it, where many discoverers have been lost who had been sent by the Governors of Peru and Chile." Even the people who entered from the North Sea (Atlantic) "never succeeded. Some were lost, and others returned, so tossed about by storms and uncertain of what could be discovered, that there was a general dread of that navigation." The viceroy's object now was to dispel that fear, and to find the best means of closing the Strait; Philip II's suggestion of a stout chain was no doubt considered.

Two ships were selected and fitted; the crew of 112 was collected with difficulty, for "nobody wished to embark, and many ran away and hid themselves," but the expedition set sail on October 11, 1579, from Callao. By November 11 they had sailed 573 leagues, and were off Chiloé; ten days later Sarmiento formally took possession of land off what is today called Wolsey Sound; and, climbing to the top of a very rugged mountain, often found it easier to "go along the tops of the trees, from branch to branch, like monkeys" until, reaching the top, they counted 85 islands in the broken archipelago below. Deserted by the second ship, Sarmiento found, in the flagship, *Nuestra Señora de Esperanza*, his way into the Strait on Feb. 2, 1580, after much experience of bad weather when surveying the westerly channels, and next day made another formal landing and proclamation of possession. They got into touch with Indians, who told them by signs of the visit of other bearded strangers, probably the men of Drake's three ships; it was not until February 9 that they encountered the big Patagonians of the east, users of the bow. On the 13th they passed Cape Froward and the Bay of the Natives, "Bahia de la Gente," where the little river San Juan was named, and where two years later the ill-fated City of Philip was founded. Sarmiento took possession and set up a cross at this spot, leaving a letter with orders for the missing ship, the *Almirante*, in case she came that way.

Six days later they passed the Second Narrows, and the First Narrows on Feb. 23, coming out of the Strait on the next day; they reached Spain, after a number of adventures, on August 15. Here Sarmiento reported to the King of Spain, and it was determined that a well-provisioned fleet should be sent to the Strait, with stores, building materials, guns, and 100 married

Balmaceda Glacier, South Chile.

In Smyth Channel, heading North from Magellan Strait.

and single colonists, the former taking their families with them. Two forts were to be constructed in the First Narrows, each garrisoned with 200 soldiers. With the expedition also went the new Governor of Chile, Alonso de Sotomayor, taking 600 married and single men as settlers. Twenty-three vessels, carrying 3000 people, comprised the imposing fleet that sailed from San Lucar on Sept. 25, 1581. Sarmiento himself went as Governor and Captain-general of the Strait, with command over the forts and settlements; but until they arrived the chief authority lay with Diego Flores de Valdes, commanding the fleet, an unfortunate choice on the part of the Crown, for Flores would not work with Sarmiento, and seems to have been a coward. The ruin of the expedition was certainly attributable in part to his actions.

Ill luck dogged them from the start. A storm assailed the fleet outside San Lucar, and five ships, with 800 men, were lost; of these, 171 were settlers, out of 357 who set out for the Strait. Another frigate was lost as they left Cadiz on December 9, and on the voyage to Rio de Janeiro, where they were to winter, 150 people died. During the fleet's stay in Rio, from March to November, 1582, another 150 died, and others deserted; an unseaworthy ship had to be sunk here, 16 vessels eventually sailing south, in poor condition. A few days later a large ship, the *Arriola*, sank with 350 people and quantities of stores, and the *Santa Marta* followed her; and from this time Diego Flores almost openly tried to impede a farther voyage southwards. He insisted on leaving three ships, with soldiers, settlers and stores, behind at Santa Catalina Island; another vessel was lost on leaving the port; and the next loss of help was occasioned by Alonso de Sotomayor's decision to disembark at the River Plate and march overland to Chile,

instead of aiding with erection of forts and settlements in the Strait. He took three ships and many of the diminishing stores intended for the new colony; and when the Strait's entrance was reached at last there were left only five vessels of the twenty-three that sailed from San Lucar. When strong winds and currents were encountered, Diego Flores put his ship about and frankly fled, signalling to the other ships to follow him back to Brazil. Arrived in S. Vicente (Santos) they found two of the three ships that had been left at Catalina Island, the *Begoña* having been sunk by English pirates, while the officials were openly selling the Straits stores in the town and the wretched intended settlers were bartering their clothes for food. Sarmiento saved what he could, was rejoiced to find four vessels fresh from Spain with new provisions for the Straits, and, after Diego Flores had definitely refused to go south again (sailing north with a large quantity of provisions and all the men he could induce to desert), Sarmiento left Rio on Dec. 2, 1583, with five vessels, and again set his course for the Strait. He reached the entrance on Feb. 1, 1584, met with fierce winds and currents, lost anchors and many cables, and was driven out of the Strait again. The Indians of the mainland "made such a smoke that it concealed sea and land." Nothing daunted, Sarmiento went ashore as soon as he could anchor under the low land of the Virgins Cape, on February 5, taking a cross which they planted on a "large plain clothed with odoriferous and consoling herbs." Soldiers, settlers and stores were landed, tents set up, 300 people housed; five springs of water were found three-quarters of a mile away, and the colonists began to search for food, having little but mandioca flour from Brazil and a small amount of biscuit. They found "roots sweet and well-tasting, like turnips" and others

as pleasant as conserved pine nuts; and quantities of small black berries, probably the fruit of the berberry (*Empetrum rubrum*) or the myrtle (*Myrtus nummularia*) that still abound on the mainland and islands of the region. The ephemeral settlement was bravely named the "City of the Name of Jesus," with due ceremonies of sod-turning, and the burial of coins and witnessed documents; an altar was set up and the litany sung by a procession. Streets and plazas were marked out by Sarmiento, and huts of grass and poles, earth-covered, built; beans, vines, fruit trees and seeds from Spain were planted near the sweet springs. Meanwhile the settlers had to subsist partly on the inadequate fish they could catch. The ships lying at the mouth of the Strait were a constant anxiety, driven out repeatedly by gales, and at last the *Trinidad* ran ashore and was lost. Alarmed, the admiral, Diego de la Ribera, took three of the remaining four vessels and fled north, carrying the remainder of the provisions, and many settlers. Ribera made no farewells and did not wait for the formal despatches of Sarmiento for the King; it was a mean desertion of gallant countrymen.

Sarmiento rescued the stores from the *Trinidad*, put the colony into a fair state of defence, with a rampart, arquebuses and guns, against the audacious natives who frequently attacked with arrows, and then sent the remaining ship, the *Maria*, into the Strait with instructions to make for Cape Santa Ana, while he took a part of 100 soldiers by land to the same spot in order to found a second settlement.

They set out on March 4; two weeks later their track was to be followed by a party of thirty or forty others. It was a hard journey through utter wilderness, and Sarmiento remarks that in forty leagues they saw neither a human being nor signs of fire, although when

he had traversed the Strait on his voyage from Peru the plains were full of smoke. They saw deer, skunks, and vultures, found berries, and at the coast obtained shell-fish and edible sea-weed, but were short of fresh water, as the streams flow under the sands when approaching the Strait; at the First Narrow Sarmiento found a suitable spot for a fort, with nearby pasture land "very pleasant to behold, with grass suitable for sheep" an observation which was proved correct three hundred years later. They noticed whales' bones in a bay beyond the first Narrow, and quantities of large, nourishing mussels.

Tall natives, naked, armed with bows and arrows and accompanied by fighting dogs, met them near Gregory Cape, pretended friendship, but later tried to ambush the Spaniards. Several Spaniards were wounded, and one killed, but Sarmiento killed the Chief with a sword thrust and the attackers fled. After seventy leagues' marching they reached the wooded country, where the "small people" lived. But the expedition suffered from hunger and fatigue, and several men, discouraged, ran away to the woods and were never seen again. On March 24 the limping, half-starved party reached Santa Ana and met the *Maria's* boat, sent to look for them. The ship's company were camped in a nearby bay. Here they found large deer, plenty of shell-fish that they stewed with "wild cinnamon" (Winter's Bark), and saw flocks of green parroquets. It was decided to found the second settlement at this spot, and on March 25, 1584, the formalities were carried out, the "tree of justice" was erected and the municipality was traced out, and named the City of the King Don Felipe. A church was built; next, the royal storehouse, large enough to hold 500 men, and the precious provisions secured; they had but 50 casks of flour, 12 of biscuit,

4 of beans, and a little salt meat, dried fish and bacon. At the end of April, clay-coated huts were ready for the approaching storms of winter; vegetable seeds had been planted, the city palisaded and defended by 6 guns, mounted on platforms. On May 25 Sarmiento embarked in the *Maria* with thirty men, arrived outside the City of the Name of Jesus on the same night, sent to and received messengers from it, but was driven out to sea by a furious twenty-day storm before which he was forced to run north. He could not return, and reached Santos on June 25, with all food long exhausted and the starving men, some of whom were blind and frostbitten, gnawing their sandals and the leather of the pumps.

He left for Rio on July 3, got help from Governor Salvador Correa and sent a ship laden with flour to the Strait; went to Pernambuco and Bahia, where his ship was wrecked and he got ashore on a couple of planks. The Governor received him kindly, gave him a ship of 160 tons, and a load of mandioca flour, cloth and provisions for the settlement. With this ship he sailed to Espirito Santo (Victoria Port), got dried beef and cotton cloth, and proceeded south in mid-January, 1585, to visit his settlements. But in 33 degrees of south latitude a frightful gale burst upon them, most of the sheep, flour, etc., had to be thrown overboard, and the battered vessel made her way back to Rio after fifty-one ruinous days, finding here, as a final blow, the ship despatched to the Strait with flour in December, put back on account of terrible weather. At the end of his resources, and unable to get further help from the well-disposed Portuguese Governor, Sarmiento determined to go to Spain to report; but on his way he was captured (August, 1586) by the little fleet of Sir Richard Grenville returning from Virginia,

and taken to England. Here he was received by Queen Elizabeth, who conversed with him in Latin for two hours and a half, with Lord Burleigh, and was specially well treated by Lord Howard and Sir Walter Raleigh, who gave the old sailor a present of 1000 escudos and helped him to obtain a passport. He was, in fact, used most kindly, and probably carried conciliatory messages to Philip II. But his ill-luck followed him relentlessly; while crossing France in December, 1586, he was imprisoned, and a big ransom demanded. Sarmiento was compelled to appeal to the King of Spain, and when the 6000 ducats and four select horses had been provided he was released, in October, 1589, grey-haired and crippled, after nearly three years' confinement in fetid dungeons "in infernal darkness, accompanied by the music of toads and rats." His first act was to make his report to the Crown, begging for help to be sent to the settlements in the Strait.

The City of Philip

But, long before Sarmiento was released from the French prison, none but ghosts walked in the City of Philip. Their fate would be wrapped in darkness had it not chanced that in the year 1586 an English captain named Thomas Cavendish threaded the Strait, was hailed from the shore by a half-naked band of eighteen people, of whom three were women, and picked up one Tomé Hernandez. This man afterwards made a deposition before the Viceroy of Peru, but this did not occur until the year 1620, when all chance of rescue had long passed. The statement of Hernandez, then sixty-two years old, displays no feeling; it is a matter-of-fact narrative, and it is remarkable that none of the interrogatories put to him denote the least concern re-

garding the fate of the settlers, but bore solely upon topographical points, questions of winds and currents, products of the regions, etc. But reading between the lines of the declaration, the tale is heart-rending. It was made by order of Don Francisco de Borja, Prince of Esquilache, the son of a canonised father, and himself a poet, scholar, and excellent Viceroy, the founder of a college for noble Indians.

Hernandez gave an ingenuous and straightforward account, from the soldier's viewpoint, of the objects and fortunes of the expedition, of the founding of the City of Philip and the departure of Sarmiento to fetch the colonists of the first settlement, an attempt from which, so far as the settlers of the second city were concerned, "he never more returned," as Hernandez simply said. Two months after Sarmiento had gone, the people from Nombre de Jesus came to join the City of Philip. It was then August, and they told of the storm that blew Sarmiento's ship out to sea. Andres de Viedma was now in charge, and he tried to provide for the hunger of the settlers by organising 200 soldiers into a band of shellfish-hunters.

During all the winter and the following summer they waited, hoping for help, and with no food but the wild berries and such sea-food as they could secure. Then they built two boats, and the survivors, fifty men and five women, started out towards the eastern end of the Strait. But, no sailors, they could not navigate well, and one boat ran ashore and was lost; the surviving boat could not carry all the people, so some returned to the City of Philip and the rest scattered along the shore to pick up shellfish to preserve their lives during the winter.

When summer came, Viedma assembled the survivors, fifteen men, and, astonishing witness to mental and

physical endurance, three women. "All the rest had died of hunger and sickness." They agreed to return to the first settlement, as nearer possible rescue, and began to make their way by land, finding many dead bodies of their comrades by the way. Twelve miles beyond Cape Geronimo they saw four ships, which they thought were Spanish, but which were actually the boats of Cavendish. A boat came off to the beach, and the settlers were told the nationality of the ships and offered a passage to Peru; the men on shore replied that they were afraid of being thrown overboard, getting the response that they might well embark, as those on the ships "were better Christians than we were." After some parleying Hernandez was taken aboard, to Cavendish himself, who, upon hearing that these folk were survivors of the settlement, said he would take them all in his vessels. But this, in the end, he did not do, taking advantage of the rare good weather in the Strait to go to Penguin Island for birds, which he salted down in casks. He sailed thence to the abandoned City of Philip, stayed there four days taking on wood and water, and brought away the six pieces of artillery that Sarmiento had placed there for the colony's defence. Storms met the ships at the western end, Valparaiso was missed in the fog, and when a landing was made at the port of Quintero, the rescued Hernandez was sent ashore to pretend to the Spanish that the ships were from Spain. But Hernandez gave secret warning to his kinsfolk, and next day when the English went ashore they were ambushed, some being killed and others taken prisoner. The latter were sent to Lima and there hanged.

Cavendish has been blamed for leaving the survivors of Sarmiento's ill-fated colony in the Strait, but if any

excuse were needed besides the fact that he did not know their desperate plight, it exists in the ungrateful conduct of the one man he took away, whose thanks took the form of sending a number of his helpers to the scaffold.

Of the fate of these last members of the large band of settlers who had set out from Spain with such high hopes, we know only that in 1590 one man signalled to the *Delight* of Bristol, was taken on board, and died on the way to Europe, without leaving his name or story. But whether they died of starvation or were taken into the roving camps of Indians, their blood was lost, although traces may have been mingled with that of the natives, who were not invariably hostile. Hernandez, answering his questioners in Lima, stated that for three months a Spanish woman, captured on the seashore by the Indians, was kept by them, but that then she was sent back. Savage nomads, perpetually short of food, the Indians of the Straits had nothing with which to hold nor help the unfortunate Europeans.

Port Famine and Punta Arenas

A brief side-light is thrown upon the settlement by the records of Cavendish's expedition. He was in "King Philip's Citie" on January 9, 1586, and gave it the name of "Port Famine" by which the spot was ever afterwards known. The town was full of dead people, the bodies lying clothed in the houses, and the explorations of his sailors resulted in finding only "muskles and lympits" for food, with a few small deer. In 1600 the Dutchman, Oliver Noort, came this way and saw Port Famine, but Purchas' account says that "heere they found no footprints of the late Philip-Citie, now liker a heap of stones."

Yet today, a few miles to the northward, stands the prosperous city of Punta Arenas. Its sturdy existence justifies, after three and a half centuries, Sarmiento's belief that this stormy region was neither unhealthy nor unproductive, and that a colony of white men could live there securely were it properly supported.

CHAPTER VI

THE TACNA QUESTION

The Storm Centre. — Indeterminate Position of Tacna. — Peru and Chile. — Boundary Problem. — Guano and Nitrate. — The War of 1879. — Treaties. — Appeal to the League of Nations. — Discussions at Washington.

Tacna is the political storm centre of the Pacific Coast of South America. It is a little province consisting chiefly of sun-bleached desert scored by a few extraordinarily fertile valleys, lying north of the great nitrate area of Tarapacá. It is tilted to the sea, the coast range diminishing to a tawny cliff's edge, and rises to long interior plains that merge into Andean spurs, with the Bolivian province of Oruro just across the snow-crowned mountain wall. The area is 23,000 square kilometres; the population was estimated in 1919 at 40,000, and counted as a thousand less in 1920, a diminution probably due to the departure of Peruvians.

This territory's fate has been indeterminate since the close of the War of the Pacific, 1879–83, and with its fertile causes for agitation has been the focus of endless quantities of argument emanating mainly from the former owner, Peru, to whom no solution is declared to be satisfactory but the unqualified restoration of the province. The interest of Bolivia in the matter is also recognised: she has brought her need

for a new outlet to the Pacific before the League of Nations, although without result; and while there is force in the reminder of Chile that Bolivia was able to make little or no use of the Antofagasta littoral while in her possession, and that her great prosperity dates from the time when she lost it and obtained as a kind of solatium an efficient railroad, national pride urges a political group of La Paz to make recovery of a coastal strip one of the planks of the oratorical platform.

Between Bolivia and her two sister republics of the west there is no ill-feeling. She trades freely with both, and in particular has derived a great deal of technical and financial help from Chilean men of enterprise in developing important mining regions. Bolivia's relations with Peru are equally friendly, although intellectual rather than economic; but the writer's experience of Bolivia has developed the opinion that Bolivians are extremely unlikely to do what is occasionally urged by the Peruvian press, to take up arms with the object of regaining territory definitely ceded, without question or reservation, by the Treaty of 1904.

The dispute, actually, lies between Peru and Chile. It is utilised by adroit politicians in South America, and farther afield, to divert attention from other inconvenient problems, and the recurrent flurry is a cause of anxiety to the industrialist and investor, whether native-born or foreign, of the West Coast. It demands settlement, and probably could be settled as other territorial questions have been solved, by the exercise of goodwill and discretion and in the spirit of compromise. But the truth is that few public men are sufficiently courageous to adopt a moderate attitude on this subject; the bellicose attitude is

easier and more popular. Inflammatory newspaper articles and speeches upon the subject are rarely of Chilean origin, it is but fair to say; but the situation is a standing invitation to the extremist and the path of the mediator is not smoothed by long postponement.

Arica port, a pretty little oasis in the desert, was the centuries-old outlet for Bolivian products; Potosi's silver came out in a rich stream during colonial days. Charcas Province, or Alto Peru, afterwards part of the Viceroyalty of Buenos Aires, had no other western port. Forty miles inland lies the old city of Tacna, also succeeding an Inca settlement, and an ancient stopping-place on the highway to the Andes.

The desert, veiled by the strange mist of this region, the *camanchaca*, lies all about these little cities; they are connected by an old strip of railway, and there are no other sizable towns. Tarata, in the spurs of the mountains, is reached only by horseback, is chiefly important as head of the department of the same name, and is only a degree nearer modern life than the villages of sturdy mountaineers that cling to the Andean folds above it. Here the llama is still the chief means of transport.

Nitrate has not been found in workable quantities in Tacna province, nor any precious mineral deposits of consequence, although silver and copper are known. The value of the territory, politically unified by Chile as one province, Tacna, 23,000 square kilometres in area, with three departments, Tacna, Arica and Tarata, and the city of Arica as the chief centre of the province, is thus not great, until irrigation permits agricultural development upon a big scale. But strategically it acts as a buffer between Chile and Peru, and it was with the object of erecting such

a buffer that Chile refrained from doing what her dominant position after the War of the Pacific permitted, taking the little provinces finally, at the same time that she secured Tarapacá, a region enormously rich in nitrate.

Peru was obliged to accept definitely the cession of Tarapacá: that loss is beyond discussion. But the indeterminate position of Tacna permits national feeling, irritation and sentiment full sway.

It is common to hear of the old unity of Peru and Chile, of the mutual sacrifices during Independence struggles, their like origin and present intertwined interests. Undoubtedly, the two states are commercially necessary one to the other; the traders of the communities are little disturbed by political aspects and own a brotherly kinship so far as the Spanish language, religion, and culture are concerned. But there are also marked divergences. There has been a much greater proportion of west European blood in Chile than in Peru; the native races were of completely different speech and customs; and climate has done its share in modifying the modern population of each country. It is a serious error to class any two South American peoples together, and the characteristics of Bolivian, Ecuadorian, Peruvian and Chilean are strongly marked. Nor, between Peru and Chile, was cordiality invariably marked in colonial days, from the time when Almagro's returned followers opposed the Pizarros and were set apart as "Men of Chile." The dominance, political and financial, of Lima during the three hundred succeeding years in legal, political and religious matters, the use made of Chile as a dumping-ground, and at the same time the endless and unproductive expense in blood and treasure of

the Araucanian wars, created irritation that was not all on one side.

Peru was rich and proud, Chile and Buenos Aires were comparatively poor: yet from the two latter political independence from Spain arrived, borne upon the swords of San Martin's army. An ocean of tact has been needed to smooth similar situations in other regions and times, and San Martin's arbitrary conduct, although objectionable to Chileans and Peruvians alike, did not ease the situation. Later, when South America's freedom from Spain had become a fact accepted by the world at large, a result due in great measure to Canning's long vision, the eyes of the new countries turned to their nebulous boundaries. Settlement of the exact frontiers has been so difficult that the disputes and efforts of a century have not, in some cases, yet decided the question. When all was Spain's, the limits of separate provinces or viceroyalties was of secondary importance; the hinterlands were frequently wooded, mountainous, or desert country, where none but Indians penetrated. It has only been since forestal products such as quinine and rubber were valorised, the worth of the commoner metals enhanced by great industries, that great interior regions of the southern continent have acquired interest, and the marking of boundaries has become a burning question.

In Chile's case, her area as a province or "kingdom" during Spanish times included the present Argentine provinces of Mendoza, San Luis and San Juan, and all Patagonia. The three first-named provinces went, with Charcas (part of the modern Bolivia), to Buenos Aires when that Viceroyalty was erected in 1776, but the possession of Patagonia and the islands below the Strait of Magellan remained a fertile source of dis-

agreement with Argentina, narrowly averting war, until 1881. A treaty then made between the two countries fixed a line in the Andes as the boundary, to follow the highest peaks dividing the rivers, while all land south of the fifty-second degree of south latitude went to Chile, except the eastern part of Tierra del Fuego. This agreement was found indefinite; the water-parting and the highest peaks were discovered to be frequently far distant from each other, and the exact boundary was only settled in 1902 when the award of King Edward VII fixed a new line, by which 54,000 square kilometres of the disputed area was assigned to Chile and 40,000 to Argentina. One small point only remains unsettled – the question as to the exact position of the eastern entrance to Beagle Channel, involving possession of Picton, New and Lennox Islands. The senates of Chile and Argentina agreed in 1915 to abide by an award to be made by the British Government.

So much for the eastern boundary. North lay the Desert of Atacama, declared by Darwin to be a "barrier far worse than the most turbulent ocean." The desert was known from early Spanish times as the boundary of Chile, but while it remained apparently worthless it was to no one's interest to decide whether the north, centre, or south of the desert formed the line. Peru's southern limit was fixed as far back as 1628 at 22° 33′ south latitude, the border of Tarapacá, near the present port of Tocopilla; between the parallels of twenty-two and twenty-five was the old Province of Atacama, extending from Tocopilla southward, including then but one port, Cobija, and all the large northerly part of the Atacama Desert. In 1770 Dr. Cosme Bueno, the Chief Cosmographer of Peru, wrote in the valuable *Conocimientos de los Tiempos* that "Peru extends

to 25° 10′ in the centre of the Atacama desert, and here touches Chile" — Atacama then, as part of Charcas or Alto Peru being included in the Peruvian Viceroyalty — and in 1776 the northern edge of Chile seems to have been accepted as touching the little town of Paposo, in almost the same latitude. But that there was haziness regarding the precise border is indicated by the fact that Fitzroy's map of 1836, and Ondanza's of 1859, and that of Pissis, 1860, all show differing boundary lines for northern Chile. Had the Paposo latitude been definitely accepted by Chile and her sisters, it is inconceivable that Bolivia would have failed to denounce energetically in 1866 the Chilean claim to territory as far north as parallel 23.

By this time the South American countries were prosperous in the huge development of commerce with the world at large, and the West Coast had entered upon a new era; there was an enormous extension of copper and silver mining, guano was feverishly exploited by Peru with great profit from 1841, and there was a developing business in nitrate, shipped chiefly from Iquique and Pisagua, in Tarapacá. In the attack by Spain upon Peru the four countries of Ecuador, Peru, Bolivia and Chile were united in resistance, and causes for trouble appeared remote. It was now that a glimpse of the hidden wealth of Atacama was revealed. Two enterprising Chilean engineers, Ossa and Puelma, seeking copper in the burning desert, obtained from President Melgarejo of Bolivia a wide concession to operate in the territory, which was neither surveyed nor utilised by Bolivians at that time, commerce to and from Bolivia still following the Arica, or Arequipa and Mollendo, route. With industrial development in sight the question of boundaries became acute, and Chile laid a formal claim to all land south of parallel 23.

Bolivia admitted the prevailing lack of certainty concerning limits by compromising; Chile's boundary was fixed at 24° s. l., while the two countries were to share customs receipts from the belts 23° and 24°, and 24° and 25° s. l. The arrangement did not work well, and was eventually revised in 1874 and a new arrangement made by which Bolivia agreed not to levy taxes upon Chilean industries, nor to impose new customs dues on exports for the next twenty-five years.

For meanwhile a great development was taking place. In 1870 the silver mines of Caracoles were discovered, a rush to the locality ensuing. With 4000 claims recorded and a tremendous stream of miners, transport was needed, and a British-capitalised and operated company registered in Chile, the Cia. de Salitres y Ferrocarriles de Antofagasta, took over the rights granted originally to Ossa and Puelma, built a port at Antofagasta and a railway to the mines, and was also presently working newly discovered fields of nitrate in the same once-despised territory. Its concession was extensive, covering all the great Salar del Carmen, and something like a boom in nitrate followed; engineers poured into Atacama, and in Tarapacá the energies of foreign companies, chiefly Chilean and British, began to alarm Peruvians, who saw the supremacy of guano threatened. Peru and Bolivia formed a secret pact (1873), of defensive military alliance, and later tried to legislate against the foreign companies. The Peruvian President, Dr. Pardo, decided to make nitrate a government monopoly, passed a law enforcing the acquisition of all nitrate works and strictly limiting its output, while President Daza in Bolivia first rented all the undeveloped nitrate deposits in Antofagasta to Henry Meiggs, an American railroad builder in Peru, and, disavowing the agreements made by Melgarejo,

decreed a duty of ten centavos per hundredweight on all nitrate exported. Both Bolivia and Peru were, it is frequently contended, within their rights in making laws dealing with their own territory: the duty suggested by Bolivia was, it is true, but a fraction of what the industry subsequently yielded. But the developing companies were exasperated at what they considered attempts to revoke rights already conceded, and to stifle nitrate production in Antofagasta. The fact that Bolivia and Peru were financially embarrasssed following periods of internal disturbance and large spending did not ease the situation.

Trouble might have been averted with mutual concessions had it not been for the high-handed act of Bolivian officials who, in December, 1878, demanded a large sum in back taxes from the Antofagasta company, and upon the refusal of the English manager, ordered the seizure of the company's property. The match had been set to the gunpowder. Chile immediately seized the ports of Antofagasta, Cobija and Tocopilla, and by February, 1879, all the Bolivian coast was in Chilean hands militarily as, previous to that time, it had been in Chilean hands economically.

Peru offered to mediate, suggesting neutralisation of Antofagasta port under the triple guarantee of Bolivia, Chile, and Peru, and new disposition of the territorial revenues; but Chile, aware of the secret treaty of 1873, demanded first the abrogation of that pact, and next the cessation of all warlike preparations by Peru and a declaration of her neutrality. Peru declined, and war was declared upon her in April, 1879.

At this time the population of Peru and Bolivia jointly was double that of Chile, and she was comparatively a poor country, without either mineral or

great agricultural wealth. But the Chilean navy was excellent and her men were hardy campaigners and fighters, as Peru, aided by Chilean troops in the war of independence and at the time of the forcible seizure of Peruvian territory by Santa Cruz in 1837, well knew.

The course of the war was disastrous from the beginning to the two allied states. Bolivia was never able to recover a foot of the coastal strip, and was forced to confine her efforts to contributions of men and material in the series of battles in which Chilean armies were almost invariably successful. When Chile had broken the small naval power of Peru by the sinking of the ironclad *Independencia* and the capture of the *Huascar*, the allies had but two wooden vessels, the *Pilcomayo* and the *Union*, with which to defend the coast. The former was taken late in 1879, the latter evaded seizure until the end of the war: but practically the sea-ways were in control of the Chilean navy, headed by the *Blanco Encalada* and the *Almirante Cochrane*, two British-built ironclads, as well as six smaller armed vessels, six months after the war began.

Sea control rendered all the Chilean forces mobile. They were henceforth able to strike at any given spot with speed and certainty, while the harassed allies were obliged to transport troops across deserts to a score of poorly supplied coastal points; they were further hampered in December, 1879, by the strange flight of President Prado from Peru, and the Bolivian Revolution which deposed President Daza. The new leaders in Peru and Bolivia, Pierola and Campero, could not stem the tide of disaster; by February, 1880, the Chileans held the littoral as far as Arica, and in April began the nine-months blockade of Lima's port, Callao, together with Ancon and Chancay. Inland the

allies held out, notably at Tacna, captured after a desperate struggle at the end of May. Arica was finally taken in June, the north coast held in submission, and the blockade of the chief ports rigorously maintained. This war was the first in which torpedos and torpedo-boats were actively employed, and while the new inventions enabled Chile to carry out naval operations with marked effect, Peru did her best to protect Callao by mooring hundreds of torpedos in the bay, and succeeded in blowing up two Chilean ships, the *Covadonga* and the *Loa.*

North American attempts at mediation resulted in October, 1880, in Chile stating her terms — the cession by Peru of Tarapacá, the relinquishment by Bolivia of all claims upon the coast, and payment of an indemnity; and occupation by Chile of Tacna, Arica and Moquegua until the first-named conditions were carried out. Years later, after much more bloodshed, ruin and misery, the allies accepted terms practically similar; but they rejected them in 1880, and Chile organised for the taking of Lima. After a fierce battle in which the Chileans are said to have lost 1300 and the Peruvians 6000 dead, the capital was captured in January, 1881, and occupied by Chile until terms were arranged by the Treaty of Ancon in 1883. This arrangement was made only between Chile and Peru, followed by a truce with Bolivia in 1884 and a definite peace treaty signed in 1904.

Chile has been blamed for making hard terms with the two sister states, but the fact is undeniable that despite the struggle made by the allies, to which Chilean historians have frequently given credit, they were utterly out-fought. Chile was completely victorious on sea and land, and she took the fruits of victory; she had, she considered, been menaced, and she disposed

of future menace. If she was severe, she had many great examples to follow. It is at least a little curious to find the United States, with the record of acquisitions of Mexican territory, constantly raising a minatory finger to Chile. This finger appeared during the progress of the War of the Pacific, and upon several subsequent occasions including a curious incident in 1920, when a flutter of local feeling on the West Coast was made the occasion of a tactless message from the State Department. These admonitions are resented by and are embarrassing to no one more than American *comerciantes* and miners operating in Chile. It is unfortunate both for the United States and the peace of the West Coast that a non-comprehension of Chilean intentions and sentiment should not only add fuel to the flame, but should keep alive ideas of forcible intervention in the minds of the losers in the war, encouraged to contemplate restoration of part of their former territory.

It is, however, not the finally ceded provinces, but the uncertain status of Tacna, that causes the chief heart-burning. The terms made with Bolivia gave Chile her present great province of Antofagasta, with its wealth in nitrate, silver and copper, but in order to conciliate Bolivian feeling and legitimate commercial ambition, Chile agreed to build, and built, a railway outlet from La Paz to Arica, the Bolivian section of which will become Bolivian property in 1928. Bolivian prosperity dates from the operation of this excellent line, and Chilean commercial and financial relations with Bolivia have been increasingly cordial. I have yet to see in any Chilean publication or to hear from any Chilean expressions of other than the greatest goodwill to Bolivia; it is almost equally the rule to encounter a sincere desire for the amicable settlement of outstand-

ing questions with Peru, and the display of a frank and moderate appreciation of Peruvian feeling. But while Bolivians in general have accepted their loss, for Peru the war is not yet over. This is chiefly due to the Tacna barrier.

Tarapacá, rich in nitrate and metals, was ceded to Chile absolutely, but the little provinces of Tacna and Arica went under Chilean control with the proviso that a plebiscite, to determine by popular vote the final ownership of the region, should be held after ten years — i.e., after 1894; the gainer of the territory promised to pay ten million pesos to the loser. This plebiscite has never been held.

In 1894 the two countries mutually agreed to a postponement, and attempts to hold the plebiscite later have been frustrated by the difficulty of arranging voting conditions. Questions as to the nationality of the persons permitted to vote, and of the constitution of the tribunal of judges, have long awaited solution. Chile has repeatedly declared that the Chancellery of the Moneda is ready to hold the plebiscite, and meanwhile occupies and develops the territory, creating irrigation systems and planning vast extensions of sugar and cotton production. Since there were in 1907 in Tacna out of a total of 25,000 people only 4000 non-Chileans, it can scarcely be doubted that the result of a plebiscite held, let us say, in 1923, would leave Tacna definitely under the Chilean flag.

In November, 1920, Peru and Bolivia asked the League of Nations assembled at Geneva to examine the treaties signed with Chile in 1884 and 1904 — with a view to obtaining international influence in the direction of modification of terms. Peru afterwards withdrew her request, while the commission appointed to consider Bolivia's case came unanimously to the con-

clusion that no intervention was possible in the case of a definitely signed treaty, handing down this decision in November, 1921. But the Chilean delegate, Don Agustín Edwards, made it clear that Chile was always ready to discuss amicably with Bolivia any suggestion for the economic improvement of Bolivia's position compatible with Chilean interests, and the way was paved for friendly discussions.

Shortly afterwards Chile made a direct offer to the Peruvian administration (in the absence of diplomatic representatives) that the plebiscite should be held in accord with the terms agreed upon during discussions in 1912, when 1923 was fixed as the voting year. Peru did not find this suggestion acceptable, in view of the fact that Chileanisation of Tacna proceeds with such rapidity that the Peruvian vote would be practically non-existent. All children born in the province since 1883 are counted as Chilean citizens, and the exodus of adult Peruvians from this and other regions has been marked since 1920, when a sudden access of local friction brought about the mutual withdrawal of consular officials.

At this moment, when it seemed unfortunately probable that the new attempt at settlement would meet with the fate of previous efforts, the United States interposed with the suggestion that representatives of Peru and Chile should meet for friendly discussions in Washington. This offer was accepted by both Lima and Santiago, and delegates were appointed in early 1922.

Peru wished to re-open the whole Treaty of Ancon, but Chile emphatically declared that only the terms of the Tacna plebiscite were matters for discussion; she also declined Bolivia's request to take part in the meetings, although reiterating her readiness to exchange views directly with Bolivia.

Conversations between the able diplomats of the two countries took place in Washington during May, 1922, but without a decisive result, the delegates announcing early in June that no agreement concerning the holding of the plebiscite in Tacna had been reached.

The break-up of the conference appeared to be inevitable when the United States Government, in the person of Mr. Hughes, Secretary of State, offered to exchange its position of benevolent host of the delegates to that of mediator. An interchange of suggestions took place between Chile, Peru and the United States, ending in a hopeful agreement signed by the two former in July; this agreement terminated the first stage of the road to peace, and practically amounted to the acceptance of arbitration.

The immediate question laid before the American arbitrators is whether or no the plebiscite should be held, and, if so, upon what terms the voting should take place. But it was further agreed, Chile cheerfully accepting a Peruvian suggestion, that if a decision should be reached precluding a plebiscite, nevertheless negotiations should be continued under United States auspices, with a view to another form of settlement.

At the time of writing, a close study is being made in Washington of the historical, political and economic aspects of the situation, and an interval of some months must take place before any decision is announced. But the outlook has undoubtedly been lightened by the very fact of amicable discussions having taken place between the delegate of the two countries, and a newer and more friendly atmosphere promises the lifting of the forty years' old shadow.

CHAPTER VII

MINING

The Nitrate Industry. — Copper. — Iron. — Gold and Silver. — Coal. — Petroleum. — Borax, Sulphur, Manganese, etc.

INTERNATIONAL agriculturists did not begin to call for nitrate of soda until the scientific study of soils was seriously attempted and experiments demonstrated the value of this chemical as a crop fertiliser. Young countries may produce grain and fruits from soil that is almost untended, but some soils of special characteristics, and old lands cultivated for two or three thousand years, respond gratefully to the stimulus offered by supplies of nitrogen, phosphate and potash. From the time that this axiom was accepted, the West Coast of South America began to ship the product of her unique deposits overseas in big quantities.

But the nitrate pampas had been known for what they were for several hundred years before the industrial boom of the late nineteenth century; small amounts were used throughout the Spanish colonial period. This employment was confined to the manufacture of fireworks and gunpowder, some of the deposits remaining in the hands of the Viceregal Government and others being operated by Jesuits and other religious orders. The Government chiefly used the "saltpetre" in making gunpowder for fire-arms, and for blasting purposes in mines of precious metals; as, for example, in the silver mines of Huantajaya, some

fifteen miles inland from Iquique. Early voyagers upon the coast noted that the gunpowder of Peru was better than that made in other parts of the colonies, and penalties were inflicted to prevent the illegal extraction of nitrate by unauthorised persons. Juan and Ulloa, writing in 1741, speak of the contraband gunpowder manufacture carried on near the *salitre* (nitrate of soda) field of Guancarama, and the efforts of the Lima treasury to stop similar use being made of the beds near Zayla. The good fathers of the religious missions had another destination for the explosive; it was used to make the immense quantity of fireworks burnt at times of festival, a custom that is not yet extinct in Spanish America.

A simple method of obtaining the nitrate of sodium from the rocky beds of mixed composition (the *caliche*) was employed by these early manufacturers, who used chiefly Indian workers. The whitish, hard substance was broken up into small pieces and thrown into huge copper cauldrons filled with boiling water. When the caliche was dissolved the liquor was dipped off with enormous spoons into first one and then another vat, and there it crystallised.

Exactly the same principle is the basis of the modern method. The caliche yields to dynamite charges, successor of the pickaxe; is brought to the nitrate plant (*oficina*), in wagons instead of being laboriously carried on the backs of Indians; the copper cauldron is replaced by a large tank, and coils containing steam at a high temperature are passed through the water; the liquor is drawn off by pipes at a carefully considered moment, and the final drying process takes place upon prepared cement floors; coal or oil fuel is used instead of wood. There is less waste of material today and the quantities produced are immense: but the ancient empirical ni-

trate extractors were not very far wrong as regards system.

After independence from Spain, small sales of nitrate to foreign countries commenced, for the manufacture of nitric acid; 800 tons were exported in 1830, but in the four-year period between 1840 and 1844 an average of 15,000 tons was maintained. Shipments rose steadily after the introduction of new methods in 1855, when steam was first used in the dissolving process and the construction of vats was changed from the system of 1812. By the year 1869 nitrate exports had risen to about 115,000 tons a year; in 1873 the figures reached over 285,000 tons; in 1876, to more than 320,000 tons.

After the War of the Pacific left Chile with the Bolivian fields of Antofagasta and the Peruvian beds of Tarapacá in her hands, a tremendous impetus was given to the nitrate industry. Great amounts of foreign capital were brought in, railways and ports constructed. Production rose steadily. In 1884 the export stood at some 480,000 tons; in 1888, about 750,000, while the million mark was passed two years later. The industry suffered from uncertainties at the time of the Balmaceda revolution, when the insurgent leaders held the north, obtaining revenues and preparing armies upon this vantage ground; but after the collapse of the Balmacedistas in 1891 foreign trade was revived, and at the end of the century nitrate shipments had reached about 1,500,000 tons.

In 1908 the export amounted to more than 2,000,000 tons, increasing considerably after this time on account of the heavy buying of the European Central Powers, Germany and Austria taking together an average of 1,000,000 tons each year between 1909 and 1914. The position of nitrate in Chile's economic life is illustrated by export figures for the last "normal" year, 1913.

The Nitrate Pampa: Opening up Trench after Blasting.

General View of Nitrate and Iodine Plant

Total export values, 391,000,000 pesos: of this nitrate and iodine represented 311,000,000 pesos. Nitrate responded to war demands, after the first paralysis of shipping had passed, and in 1916 nearly 3,000,000 tons were exported for munitions manufacture to the Allies and the United States. The greatest purchasers of Chilean nitrate today are European and North American agricultural countries; Australia also finds this chemical of great value and, before the war, regularly exchanged it for coal cargoes.

South America herself probably presents the most extensive stretches of agricultural territory which make practically no use of nitrate. In Chile its use is almost non-existent, partly because the soil is too newly opened and rich to need a stimulus as yet, and partly because the moist southerly regions are considered unsuitable for the employment of the easily soluble salitre. Guano is the most popular fertiliser in Chile, especially in the north: its use follows old Inca custom, when such valleys as that of Arica were irrigated and fertilised to produce famous crops of maize, *aji* and cotton.

The Nitrate Pampas

No stranger country than that of the wide, golden-pink pampas where nitrate lies is to be found in the Americas. The circumstances that created the deposits, the rainless climate that preserved them for unknown centuries, are unparalleled; the belt upon the Chilean West Coast between 19° and 26° of south latitude contains the world's sole source of naturally produced nitrate of soda. It is a unique region, and although the science of production of atmospheric nitrate advanced during the war, producers of the Chilean chemical do not view this competitor with alarm. Artificial pro-

cesses are expensive; Chile can, if necessary, lower nitrate prices to meet any rival.

The coastal border of the great nitrate belt is about 450 miles in extent, its tawny dunes displaying no tree nor smallest green thing except in such rare spots as where a thread of water survives the burning sun and sand, or where, at a port, an artificial garden has been created with piped water. The generally waterless state of the region has long reduced it to sterility. None of the nitrate deposits lie upon the coast, or at a distance of less than fifteen miles inland. The average distance of the westerly margin of the deposits from the sea is about 45 miles, a few of the beds, however, lying as far as 100 miles inland. Between the salitre fields and the Pacific Ocean runs the diminished coastal range, dwindling here and there to nothing more than a straggling series of broken, rounded hillocks; to the east the deposits are guarded by the backbone of the Andes. The general altitude of the beds above sea level is from 2000 to 5000 feet.

The whole extent of the treeless and practically waterless country of North Chile, presenting a broad and tawny face to the unchanging blue sky, is a vast series of mineral deposits, for not only nitrate of sodium but also copper, borax, gypsum, cobalt, manganese, silver, and gold are spread through the great areas comprising the present provinces of Antofagasta, Tarapacá, Tacna and Atacama. Some of these minerals have been worked for centuries, but whatever small and more or less isolated deposits of nitrate exist in the two last-named regions remain unexploited: commercial production of the mineral is confined to the two great rich provinces of Tarapacá and Antofagasta.

The salitre beds vary in thickness and are of capricious distribution: great areas within the rainless

region show no trace of these deposits, while in others the layers run twenty feet thick. The surveyed fields cover at least 225,000 acres, contained chiefly in five major districts. The most northerly, the Pampa of Tarapacá, ships its products from the ports of Iquique, Caleta Buena, Patillos, Junin and Pisagua, and is served by three railways — the Nitrate Railways Company, the Agua Santa Nitrate and Railway Company, and the Junin Railway Company. Next comes the Pampa of Toco, exporting through the coast town of Tocopilla, to which it is joined by the Anglo-Chilean Nitrate and Railway Company. Farther south lies the enormous Pampa of Antofagasta, with outlets at the fine port town of Antofagasta and its older rival, Mejillones; the region is served by the main line and branches of the Antofagasta and Bolivia Railway Company. The fourth field in order is the Aguas Blancas Pampa, with a shipping point at Caleta Coloso, reached by an arm of the Antofagasta and Bolivia Railway; and the most southerly deposit of considerable size is the Pampa of Taltal, shipping its product by the Taltal Railway to Taltal Port. A few isolated beds lie outside the areas of these five great deposits, as the Providencia and Boquete beds of Antofagasta, but so far as present surveys have proved their existence, the great masses of nitrate are definitely localised.

Tarapacá, with 76 oficinas equipped, normally produces about 40 per cent of the total nitrate exported from Chile; Antofagasta, with 30 oficinas, chiefly of a more modern type, produces about 35 per cent; Taltal, with 9 oficinas, ships usually some 10 per cent of the total; Tocopilla, with 7 oficinas, about 9 per cent; and Aguas Blancas, with another 7 oficinas, is responsible for 6 per cent.

Nitrate Companies

The total capital invested in nitrate lands and plants is calculated at 400,000,000 Chilean gold pesos of eighteen pence, or about £38,000,000 sterling. It is not easy to state exactly what proportion of this total should be assigned to each of the different groups of nationals owning these properties, since many firms employing foreign capital are registered as Chilean companies, and both during and since the war a considerable number of oficinas have changed hands; but the official statistics published by the Chilean Government give the percentage of production ascribed to the various groups of owners, thus offering a useful guide.

The figures ascribe to Chilean owners, out of a total 129 plants in operation in 1918, 60 oficinas, producing 50 per cent of the nitrate total; to English companies, 43 oficinas and 34 per cent of the production; to the Jugo-Slavs, with 7 oficinas, about 6 per cent of the production; Peruvians, 7 oficinas, 3 per cent of production; Spaniards, with 3 oficinas, less than 2 per cent of the total output; Americans, 2 oficinas, nearly 3 per cent; Germans, with 2 oficinas, less than 1 per cent of production — this reduction from a larger pre-war production being due to closure of several properties from 1914 onwards.

The Chilean companies include the largest and most heavily capitalised in the country, one of these, the Compañia de Salitres de Antofagasta, producing 10 per cent of Chile's total output. The firm owns seven oficinas, employs 15,000 men, does a large general import and export business, owns its own fleet of barges and tugs, and possesses a belt of nitrate lands on the Antofagasta Pampa twenty miles long. In 1918 the company, capitalised at 16,000,000 pesos (Chilean

paper), earned profits of over 22,000,000 pesos or over £1,000,000 sterling at the prevailing exchange, and was thus able to set aside a substantial sum for rainy days. It is on account of earnings such as these, supplemented by the fantastically huge sums earned in the summer of 1920 when the price of nitrate rose to seventeen shillings per quintal, that the nitrate companies were able to observe with a semblance of equanimity the subsequent and sustained fall in prices. The international merchants were badly hit when the slump of 1921 came, but companies in Chile had made so much money that it was preferable in many cases to shut down operations rather than to continue the production of unwanted goods.

Other big Chilean firms are the Cia. Salitrera "El Loa," operating seven works, all in Antofagasta Province; the Cia. Salitrera Lastenia, with three fine properties upon the same pampa; and the Cia. de Salitres y Ferrocarril de Agua Santa, operating six oficinas on the Tarapacá Pampa.

Of the English companies, the largest was the Alianza, operating three oficinas in Tarapacá, and exporting normally about 150,000 tons annually, but this company has changed its domicile to Valparaiso and now counts with the Chilean group. The Anglo-Chilean Company has three oficinas in the Tocopilla district; the Lautaro, three, on the Taltal Pampa; the Liverpool Nitrate Company, three, in Tarapacá; the Amelia, three, in Tarapacá and Antofagasta; the Fortuna, three, in Antofagasta; the Rosario, three in Tarapacá; the New Tamarugal, two, in Tarapacá, where the two nitrate works of the London Nitrate Company and the properties of the Lagunas companies are also situated.

The German oficinas are twelve in number, operated by four companies. Of these the most important is the

Cia. Salitrera de Tocopilla, formerly the Compañia H. B. Sloman, with four properties on the Pampa of Toco. The Cia Salitrera Alemana owns five oficinas, all situated on the Taltal Pampa; Salpeterwerke Gildemeister A. G., has three works in Tarapacá, and the Salpeterwerke Augusta Victoria A. G., one oficina, in Antofagasta. The well-known Italian firm of Pedro Perfetti owns five oficinas in Taltal.

The nationals who most notably increased their interest in nitrate properties during and immediately after the war were the enterprising Jugo-Slavs who have of late years taken a considerable part in Chilean development work. The largest of the Jugo-Slav firms is that of Baburizza Lukinovic, with five well-equipped oficinas in the Antofagasta district. Several other European-owned oficinas passed into Slavic hands before the stagnation of the market set in.

Two North American firms own nitrate oficinas. The Dupont Nitrate Company operates two properties in Taltal from which about 30,000 tons are annually shipped, but since all this product goes directly to the Dupont explosives works in the United States, the market is not interested in the output. W. R. Grace and Company, doing a general export and import trade and employing their own steamers, operate nitrate works in Tarapacá, with a production of about 45,000 tons.

A few years ago pessimists prophesied that the Chilean nitrate fields would be exhausted by the year 1923. Careful examinations carried out by the national authorities as well as by individual companies have definitely allayed any fear of this kind. Surveys made under the auspices of the Chilean Government by the distinguished engineer Francisco Castillo showed that nitrate fields properly tested, owned and in operation,

cover some 2244 square miles, while outside that area there are at least 75,000 square miles of undeveloped nitrate-bearing lands — chiefly in the hands of the Government of Chile. With, thus, over 95 per cent of the deposits untouched it is reasonable to expect a long life for this industry.

From the fields of Tarapacá and Antofagasta 60,000,000 tons of the chemical have been taken since the beginning of overseas exports, and it is estimated that in the comparatively small surveyed and operating area there are about 240,000,000 tons in sight, a quantity sufficient to fill the world's needs for at least another century at the present rate of supply. This is without taking into consideration the huge body of less readily accessible nitrate lands referred to in Dr. Castillo's conservative report, which included no deposits containing less than 17 per cent of nitrate, nor layers of less than twelve inches in thickness unless exceptionally rich.

The Caliche

Into the highly controversial question of the origin of the nitrate-bearing deposits it is unprofitable to go deeply, since, as in the case of petroleum, scientists have not agreed upon a theory. Several have been put forward, and a good deal of study and research has been devoted to the problem, but with no final result, a definite objection tripping up even the most likely suggestions. The most generally supported theory is that which was expounded in its original form by Darwin, postulating the long submergence of this part of the West Coast under the sea, its gradual rise through volcanic action, and the slow drainage and drying of masses upheaved from the Pacific floor. Remains of shellfish are occasionally found imbedded in the caliche,

and the presence of iodine is also adduced as contributory evidence; but bromine is curiously absent, and the question is complicated by other geological displays, some of which certainly seem to prove that before the subsidence of this belt in the Pacific the land was high and dry, clothed with thick forests.

I listened once upon a burning afternoon in the nitrate pampas to the seriously held theory that the caliche drained down, under the soil, from the mountains, and that the particular beds upon which my good friend was operating owed their origin to Lake Poopó, a turquoise gem near the railway line leading to Bolivia; the beds, it was insisted, seeped slowly from the lake and were being pushed up from underneath by subterranean pressure. Another theory credits the volcanos of the Andes with the production of sufficient ammoniated steam to create chemical changes upon the pampas; others suggest the union of oxygen and nitrogen in the air during electric storms, forming nitric acid which, in contact with lime, might produce nitrate of lime; this, if coming into touch with sulphate of soda, might form nitrate of soda, releasing the sulphate of lime.

He who prefers a less technical theory may agree that nitrogen deposits are derived from the guano of seabirds, found along the Pacific coast.

The terminology of the nitrate pampas is a proof of its old recognition. The *chuca* is the loose, often friable, decomposed top layer, from two to twelve inches thick. Below it comes the *costra*, a hard, rocky agglomeration of cemented clay, porphyry and feldspar amalgamated with sulphates of calcium, potash and soda, often also containing traces of nitrate of soda and common salt. Third comes the *tapa*, the immediate shield of the nitrate of soda beds, composed of fragments of nitrate, of salt, sand and clay. These three layers form mat-

tresses from a few inches to three or even six feet in depth, and owing to the hardness of the costra must be blasted away from the precious fourth layer, the *caliche* proper.

The caliche bed varies remarkably in thickness and in position, sometimes offering a thin, sand-mixed, layer of little value, and at other times revealing itself as a beautiful shining snow-white bed several feet in thickness; its hue varies from pure white to grey, sandy, and even violet, and its consistency may be sometimes loose and porous, while in other regions it is as hard as marble. The best caliche contains as much as 70 per cent of nitrate, and by the present methods of extraction it is not considered worth while to operate deposits containing less than 14 to 15 per cent. The average in Tarapacá and Antofagasta runs to about 20 per cent. Below the caliche is the *conjelo*, another fairly loose layer of sand and clay, salts, selenite crystals and traces of nitrate; still farther down is another plainly differentiated stratum, called the *coba*, with a comparatively high percentage of water, a heavy proportion of clay, calcium sulphate, and other minor components. The nitrate is often carried through several of the protecting layers, and foreign matter is frequently found mixed with the caliche, yet the different strata almost invariably exist in readily distinguishable and undisturbed beds.

The process of preparation for the market is simple. The caliche, thoroughly crushed by heavy machinery, is tipped into immense tanks and covered with water: coils of pipes fixed in these vats heat the mass to a high temperature and the nitrate of sodium, readily soluble in boiling water, dissolves. The other ingredients of the caliche fortunately are not so easily dissolved, and settle to the bottom of the tanks, so that when the

water is drawn off and cooled the nitrate crystallises in a high grade of purity. There is a moment to be watched for in drawing off the liquor, however; common salt (sodium chloride) is frequently present in the caliche in unwanted quantities, dissolving with the same readiness as the nitrate. But it begins to precipitate before the nitrate, and the right time for withdrawing the liquor is when the salt has settled and the nitrate is immediately following it. The nitrate-charged water crystallises on the floor and sides of the shallow *bateas* (vats, generally of wood) into which it is passed, the process of cooling and crystallisation taking from 20 to 40 hours. The liquor is then pumped away, part being used for the manufacture of iodine according to the amount permitted to the oficina by the central Association, while the nitrate crystals are gathered in large pans for a few days for draining, and afterwards spread upon the cemented open planes, the *canchas*, for two weeks until thoroughly dry; it is then ready for bagging. It is during the drying stage on the cancha that nitrate in large quantities, all over the pampas, would be spoiled by dissolution if heavy rain should fall — a phenomenon of such rare and unlikely occurrence that it is not taken into consideration. The belt is not absolutely rainless, Iquique claiming a rainfall of half an inch per annum, while the Antofagasta Pampa has received showers four times in the last fifteen years; heavy fogs, too, not infrequently invade the pampas. But it would take a series of terrific deluges for moisture to filter through the protecting crusts above the caliche, and this sometimes suggested danger is not in sight.

The "commercial standard" of purity which exported nitrate must attain for sales to agricultural regions is 95 per cent, but 96 per cent and over is reached in shipments destined to explosives factories. The cost of

production of necessity fluctuates with the prices paid for wages, fuel and equipment, but was reckoned by Dr. Enrique Cuevas, in 1916, to work out at a minimum of two shillings, or fifty American cents, for each Spanish quintal of 101 pounds weight. During 1921 the cost was reckoned at double this amount. Expenses tend to increase year by year, with higher wages and costs of food and fuel, as well as new charges such as that recently added by the Employers' Liability Laws of Chile. Antofagasta reckons that the cost of living increased 300 per cent between the middle of 1914 and the middle of 1921: it is certainly no less upon the inland nitrate fields, where all merchandise has an extra rail journey, every gallon of water is piped long distances from the mountains, and it is common to bring cattle for slaughter overland from northwest Argentina, the animals being shod for the three or four weeks' march over rough trails. The only method of reducing costs is by improved scientific production, and to this aim the work of the best companies is constantly and successfully directed.

Iodine is extracted from the "mother liquor" that has already deposited its burden of nitrate of soda and of common salt, and which is, after the extraction of iodine, returned to the first lixiviation tanks to serve again in dissolution of new loads of the raw caliche. The purple-black iodine crystals, of so pungent a quality that a whiff from the store-room is almost blinding, are packed into strong little wooden casks for export. A couple of big oficinas could, between them, manufacture enough iodine in a year to supply the world's needs, but to prevent glutting of the market there is an agreement with the Producers' Association by which the amount of this chemical made by each nitrate plant is strictly regulated.

A Desert Industry

Before the realization of the properties of nitrate and its commercial exploitation upon a great scale, the burning pampas of Tarapacá and Antofagasta were solitudes, shunned by all animal life. This region, whose products were destined to give new life to a million cultivated fields, to bring orchards and groves all over the world into magnificent flower and fruit, lacked the ability to produce so much as a blade of grass. Forming a continuous stretch of arid country with the long deserts north of Copiapó, the major part of this strip shelters no life that has not been artificially introduced.

Yet today this region presents the liveliest scenes of the West Coast. Where a solitary waste lay under the sun, railways cross the desert with loads of heavy bags of chemicals; tall chimneys rise into the quivering air, the grey tin roofs of the nitrate works dot the pampas thickly. Each nitrate plant is the centre of an artificial town, to which every drop of water must be piped, every article of clothing, food, every scrap of wood and metal needed for dwellings and oficina must be carried. The ground is pitted with the marks of the *tiros*, the test blastings made in all directions to discover the quality and position of the nitrate stratum; and one may stand upon any small rise in the richest nitrate pampas and count a dozen or more of the long flat "dumps" of waste material that denote the active working of an oficina.

The scene appears to have no elements of beauty, for there is no hue but that of the sandy desert, the grey and black of the oficinas and the gleam of railway tracks; the outlines of the scored and pitted ground, the railway cars, the smoking chimneys, are harsh. Yet there is a sense of energy and prosperity, of intelligent activity, and in the pure dry air of the pampa almost

everyone experiences a feeling of splendid health and well-being.

Above the flat desert is an enormous bowl of clear, transparent sky and one looks far away to distances that seem endless. At sunrise and sunset the effects of light upon the sky and pampa are of a beauty never seen but in expanses such as these. I have watched the sky in an Antofagasta nitrate pampa when, as the sun fell swiftly, all the arch flushed with rose, and quickly flooded with sheets of purest violet while the orange and umber pampa took on deep amethyst shadows; before pastel or paint could record the sight, all the sky was transformed in a clear luminous lemon-yellow, upon whose bright surface streams of translucent green presently ran. The high peaks of far-distant Andes appeared as if floating, the snow-crowned heads of San Pedro and San Pablo alone visible against the changing sky, fading at last into the mantle of sapphire that gradually shrouded pampa and heights, with nothing moving but a host of brilliant stars, sparkling like diamonds on a live hand.

In a few moments after sundown the scorching heat has given place to sharp cold, and he who rides by night across these deserts must carry a heavy woollen poncho; one sleeps indoors under blankets. Dawn is a miracle of pink and pearl, and in at the window comes the scent of the cherished flowers in the little garden, glistening with dew. The new day is an of indescribable freshness and serenity. Long before noon the sun is pouring vertical floods of sunshine upon the desert, the very sand seems to quiver with heat, and a relentless scorching breath seems to fill the world. But to this all-the-year-round heat the foreigner soon becomes accustomed — everyone, as a matter of fact, workers and officials alike, is a "foreigner" to this pampa; human life is imported

like every other commodity here. But the children born of white parents in the nitrate fields are strong and sturdy, and it is not surprising that they who have lived for a year or two on the pampas find themselves restless in other places, suffer a feeling of constraint, a longing for these wide skies and far horizons.

The great development of the nitrate industry has created during the last forty years a series of ports along the Pacific, and brought to this once desolate coast, where there existed only a few fishing villages or outlets for desultorily-worked mines, a population which today exceeds 350,000. The workers directly engaged in the extraction, preparation and shipment of nitrate number about 70,000, about 50,000 of these being employed upon 173 oficinas, when all are in operation.

Nitrate During and After the War

When the writer last visited the Antofagasta Pampas, the nitrate business was just recovering after a period of post-war depression and the series of big works were getting back into the full swing of activity. The industry had been enormously prosperous just before the outbreak of war in 1914, but experienced very sudden reverses when the dislocation of shipping checked shipments. At the beginning of 1915 only 35 oficinas were in operation. A certain confusion was also occasioned by the fact that several big producers were German, but the accumulated stocks of these firms were eventually taken over and sold by the Chilean Government. At the time when the future looked gloomy, with oficinas idle and large stocks piled up in the warehouses of the nitrate ports, the great war call for nitrate in the manufacture of high explosives began, resulting in a new wave of prosperity. Shipping had to be found by

the Allies for the transport of the chemical, and the ports of the pampa regions showed tremendous activity. But with the cessation of hostilities the urgent demands of manufacturers of explosives in the United States and Europe came to an end and the pre-war market offered by farmers did not immediately resume its calls. Shipping gradually returned to ordinary commercial channels, the scarcity of freight for normal commerce was at once apparent, and the rates that consequently prevailed were too high for profitable shipment of nitrate at the prices to which it fell. Many oficinas closed down. But in early 1920 a healthy reaction set in. Agriculturists began buying again, and added to this cheerful effect the industry was reassured by the non-materialisation of many threatening prophesies of the serious nature of the competition to be offered by artificially-produced nitrate.

The work of the active Asociación de Productores de Salitre de Chile first made itself felt in 1920. As its name implies, the group comprises firms engaged in Chilean nitrate production, practically every company subscribing with the exception of the two North American operators and a few small oficinas. Formed by the same energetic firms who previously organised, in 1889, the widely-spread Committee of Nitrate propaganda, the Asociación goes farther in that it controls the output of nitrate of soda and of iodine, agrees upon a price, f.o.b. in Chile, for these products, and deals with international distribution. Maintaining committees in London and Berlin, the Association has also opened branches in France, Belgium, Holland, Italy, Spain, Scandinavia, Egypt, Yugo-Slavia, India, South Africa, Japan, China, and all over North and South America, these delegations being added to wherever prospects for the consumption of nitrate are presented. The Asso-

ciation's main object is to obviate the violent fluctuations of price that have threatened the industry from time to time; to watch markets closely and to avoid overloading them by retaining a check upon output. The Association's headquarters are in Valparaiso, in constant cable communication with international centres. The effect of the work of this voluntary combine, upon which such other powerful groups as the Eastern rubber planters look with something like envy, has been undeniably beneficial although no efforts can counteract the adverse results of slackened demand.

In 1913 the price per Spanish quintal was eight shillings f.o.b. in Chile, or about $2 United States currency, while freight to British ports cost twenty-three shillings per ton, New York charges running about $6. Nitrate is packed into bags of two quintals each, ten bags thus weighing a little more than an English ton. During the war the price rose to thirteen shillings per quintal, but fell to between nine and ten shillings in 1919. Owing to a strong reawakened demand, plus the work of the Association, the price rose in 1920 until about the middle of the year it stood at seventeen shillings per quintal for deliveries in the spring of 1921, and even with freights ranging from £5 to £12 a ton to London, and $30 to $50 to New York, a handsome profit remained to producer and distributor. This prosperous period lasted until the general world paralyzation of markets was felt, and the big Government nitrate stocks of the United States and Europe were released. In 1921 the international dealers, with stocks of high-priced nitrate on their hands, faced the delayed post-war slump, and formed a pool to maintain prices at fourteen shillings per quintal. Sales were reduced to vanishing point, and the way was opened for more extensive rivalry from the sulphate of ammonia trade;

eventually the pool agreed to lower prices upon an arrangement with the Nitrate Producers' Association, by which £1,500,000 was accepted as part compensation. This sum is collected by a small levy upon all nitrate exported. Prices were then reduced to eleven shillings per quintal up to December, 1921, and to 10 s. 3 d. for deliveries in the spring of 1922. At these prices trade revived appreciably, and the world's need for nitrogenous fertilisers set freights moving again.

Continuing for more than a year, the nitrate crisis affected no one more acutely than the Government of Chile, for in addition to finding themselves suddenly deprived of the most substantial part of their national revenues, they were faced with a staggering amount of unemployment. The oficinas, of which all but 45 were forced to close as a result of the moribund market, discharged some 40,000 men. There is no work in the Desert of Atacama apart from nitrate and copper industries; the land produces no food and there is nowhere to live. A stream of unemployed workers was almost immediately directed southwards, and while a proportion was absorbed by the farming and milling industries of the agricultural zones, numbers remained in the vicinity of the capital, a source of considerable anxiety. At one time it was reported that 10,000 men were camped out near Santiago, a charge upon the Government, and although the authorities were active in seeking to find employment on a series of public works, these plans were rendered difficult by the financial straits of the nation. The administration of Sr. Arturo Alessandri went into office with many schemes for the betterment of living conditions in the working classes, but has been seriously hampered by the economic trials that beset Chile within a few months of the change of government.

It is scarcely to be expected that the Government should see eye to eye with the nitrate producers in the question of sustained export at a time of market depression. The nitrate companies argue that it is useless to produce and attempt to export a commodity for which there is no demand, with immense stocks already choking international warehouses: that any such action would lower the price of nitrate to a level ruinous to the holders of the existing stocks and be bound to react disastrously upon nitrate producers. The Government rejoins that they desire a general lowering of nitrate prices, so that the fertiliser should be bought in larger quantities; they want to see a continuation of large quantities produced and exported, in order that workmen should not be, as during the 1921 crisis, thrown upon the country's hands, and also in order that export dues should continue to fill national coffers. To this the producers reply that there is one ready means of lowering nitrate prices, and that is to take off or to substantially reduce the Government export taxes, amounting to £2.11. 4. per ton. As a matter of fact, there has been serious consideration of a governmental project to purchase the nitrate output direct from producers, reselling it to world markets free of tax, or with a very light duty. Here again plans are stultified first by lack of funds and secondly by lack of public enthusiasm for nationalisation of industries in the face of the world's experience during the last ten years. There is a wide recognition of the fact that the nitrate industry has been built up by private enterprise of a kind invaluable to young countries.

He who tries to understand the nitrate situation is much hampered by different calculations of weights and costs, and will sympathise with the complaint of Don Alejandro Bertrand, who remarks that in statistics

of the industry one finds "production and export of nitrate expressed in Spanish quintals of forty-six kilograms; prices quoted in pounds sterling per English ton of 1015 kilograms; while the British financial reviews vary, some giving the prices in shillings and pence per English hundredweight, while others quote pounds, shillings and pence per English ton. The Latin countries quote in francs, liras or pesetas, whose sterling exchange value varies, while Hamburg quotes in marks per zentner of 50 kilos." Quotations also vary, continues the Inspector for the Chilean Government of Nitrate Propaganda services, according to whether the chemical is sold in Chile, where prices are always "free on board," or free alongside vessel, or whether they are sold including ship freight to Europe or when placed in wagons at the port.

There are today 173 oficinas upon the *pampas salitreras* of Chile. At the commencement of the commercial development of the fields, British capital and technique was foremost in the work, the efforts of the well-known Colonel North contributing largely towards the active interest of British investors. Chileans themselves have long been keen developers of nitrate properties and considerable investors; today their share is higher than that of any other nationality — a situation unusual in Spanish American countries, where industries are frequently left to foreign companies to a degree unhealthy for everyone concerned. The Chilean's enterprise and business sense have indeed carried him far afield, his interests in Bolivia covering 60 per cent of the silver and tin mines.

The social system upon all oficinas is necessarily the same: dwellings and food supplies for the workers must be the consideration of the company, and in consequence large camp stores (*despachos*) are always main-

tained in which goods are sold to employés. Certain objections to this system are always heard, but it is here unavoidable; in all good and well-managed oficinas these stores are stocked amply, prices being kept down to a limit at or just above cost price. There is always a keen demand for workers, and no nitrate camp would retain its employés if conditions were not those uniformly regarded as just. The chief social difficulty of the oficinas is in keeping off company lands the enterprising piratical provision and liquor sellers who are likely to demoralise and rob. The only remedy is enclosure of the properties and fencing is becoming more usual. At one time the boundary of a nitrate grant was fixed by a string and a heap of stones, but since the Chilean Government has taken steps to regularise estates there has been less of the happy-go-lucky system of limits.

The acute interest of the authorities of Chile in the nitrate industry is due to the fact that it constitutes the chief source of national income. Over 60 per cent of Chilean revenues are derived from the export tax of two shillings and four pence per quintal, paid partly in paper and partly in gold, the total sum amounting in prosperous years to £7,000,000 or £8,000,000 sterling, or between $35,000,000 and $40,000,000 United States currency.

The tax is a heavy one, and equally weighty imposts are placed upon iodine, also a product of the nitrate oficinas. The product of the wonderful borax lake, in upper Antofagasta, on the edge of the Bolivian boundary, pays a similar tax, yet the considerable export of copper from Chile goes free. This unequal treatment of the different natural riches of the soil is frequently explained by the fact that copper is mined in many parts of the world and therefore the Chilean product

must meet competition, an impossible feat if its cost were raised by the imposition of export dues. If, however, the cost of production of Chilean bar copper by the Guggenheim group is correctly estimated at eleven cents per pound, it is fairly plain that at the time during the war when Europe was paying twenty-six or twenty-seven cents per pound for this commodity it might have yielded a return to the country of origin.

Of the nitrate ports, Antofagasta is today the most lively and agreeable, although Iquique is still a rival in quantities of the chemical exported. Just north of Antofagasta lies Mejillones, the old port established in colonial days, but its equipment was found to be inadequate after the acquisition of this territory by Chile, and the creation of modern facilities and a modern city was decided upon. People who live in Antofagasta are proud of the place with excellent reason. The approach by train from the south is through ramshackle, happy-go-lucky fringes that have tacked themselves on, but the city itself is well equipped. Streets are wide, clean and well paved; shops are filled with merchandise from London, Paris and New York, and are not extravagant in price. Office buildings, many of which house the representatives of nitrate railways, nitrate and iodine companies, agencies of copper and borax companies, of shipping lines, brokers and several foreign and native banks, are spacious and well equipped; the telephone service compares well with that of many cities of ten times the size of Antofagasta, with its 70,000 inhabitants. Hotels are comfortable, service courteous, and tariffs less than one might expect in a city with not a single meadow or orchard within hundreds of miles, deriving all that it consumes from the Chilean farming lands farther south,

from the packing-houses of Magellanes territory and wheat fields of the centre and south, or from the sugar and fruit regions of Peru or markets overseas.

The public park is an object of admiration of every visitor coming from the barren coast farther north or from the Atacama copper country to the south; it has been sedulously nursed into greenness that is the more remarkable since Antofagasta's water supply is piped from the foothills 200 miles away — through lands so arid that more than once a fox of the deserts, driven with thirst, has followed the pipe-line across the pampas right into the city. The great pride of hospitable and cheery Antofagasta is in the country club to which the visitor is always motored along the sweep of the bay; here is a cool building with a fine dancing floor and a good cook. But its chief claim to admiration is the little garden, no more than a few feet square, tended so devotedly that all the year round it glows with gay flowers.

All the chief towns of the nitrate pampas, besides possessing rail transport to the Pacific, are connected by the main line of the "Red Central Norte" to Santiago, and thence to the farming regions of the Chilean south; there is through railway connection, thus, between such towns as Iquique and Antofagasta and the newly-operating packing-house of Puerto Montt. Agricultural Chile has no better markets than those offered by the thronged and busy nitrate pampas and ports of her own north, and from Llanquihue to Coquimbo, the last outpost of farming country in northern Chile, foodstuffs are sent by rail or sea to supply the great region of desert camps.

Antofagasta. The Nitrate Wharves.

Copper

The future of copper mining in Chile is wrapped in uncertainty. The industry has already undergone a not unfamiliar transformation, with a deeply marked effect upon the Chilean population engaged in this work, for, commencing as a series of individual enterprises on the part of the native-born, it has become a large scientifically organised business operated chiefly by foreigners,[1] with the Chileans reduced to the position of wage-earners.

Under the old haphazard system, when a man would frequently go out into the desert alone, or with a single companion, hunting for rich veins of copper ore, a good living at least was the rule; when the discovery of a considerable deposit warranted the introduction of simple machinery, a few employés, transport animals, etc., many little and big fortunes were made. The buyers and smelters of last century also earned satisfactory returns. But, curiously enough, the huge organisations utilising immense masses of lower-grade ores, employing thousands of men and most modern machinery, with smelters at the mining camp, are generally stated to be run at a loss. There are reasons why such statements should be accepted with reserve, but looking at the matter purely from a Chilean angle it is at least questionable whether an industry which yields nothing to the national treasury in the way of export dues upon the mineral shipped out, and which draws many thousands of men from agricultural zones to an isolated and entirely artificial life under conditions tending to lower the standard of citizenship, has a sound *raison d'être*. Possession of the large Chilean

[1] The most recent foreign entry into the Chilean copper field is that of the Japanese, with interests in three large deposits in Bio-Bio Province.

copper deposits, whether operated at all, or operated without profit, does however enable a group of powerful interests controlling copper in North America to control also the copper markets of the world: for after North America, Chile is the scene of the greatest identified copper areas, the two series of mines together producing over 60 per cent of the total international output.

At the present time, that is to say, at the end of 1921, the situation in Chile with respect to copper is briefly this: there still exists, throughout the copper-sown regions of Coquimbo and Atacama provinces, a diminishing number of small mines following rich veins of the ore. Some of these are little more than holes in the ground, others are worked by organised companies with good machinery, housing several hundred workers and owning their own system of transport, as the Dulcinea mine in Copiapó. But almost everywhere the rich lodes, containing anything from 8 per cent of copper upwards, are disappearing; they have been hunted for centuries, and although scientific examination of these immense regions would no doubt reveal many unsuspected rich deposits, the accessible mines have been worked out to a considerable degree.

No more striking example of the rise and fall of a copper mining centre is to be seen in Chile than at the deserted city of La Higuera. It lies just off the road leading from La Serena (Coquimbo) to the iron mountain of El Tofo, upon a tiny thread of a stream trickling from the steep and tumbled mountains. The city lies in the shallow cup of an immense hillside, a patch upon the sandy and orange waste; numbers of black dumps mark the sites of old copper mines, a score of chimneys stand among the silent machinery of abandoned mines. At least a thousand houses make, from a distance, a brave showing.

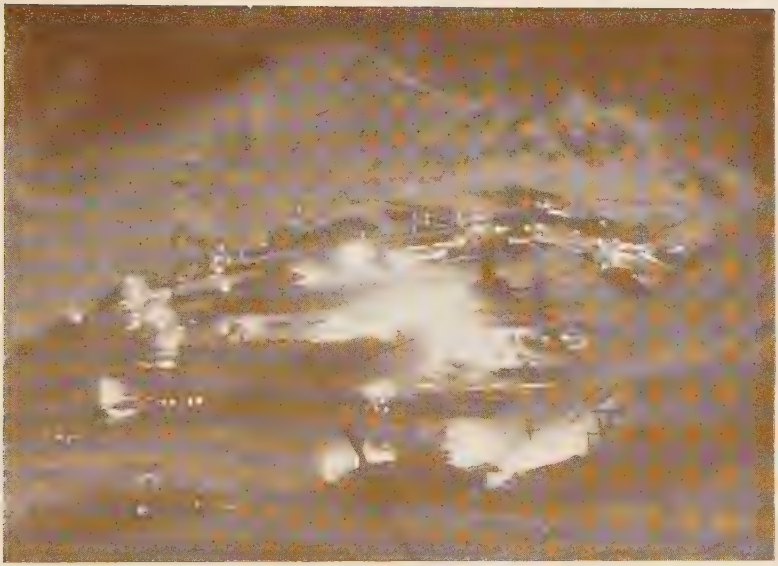
But at the approach of the infrequent visitor in automobile or on horseback, the houses are seen to be windowless, empty; nothing moves in the sun but a stray cur or two, until presently an old woman with a child at her skirts peeps from a makeshift shelter. The whole place is dead; not an engine is working, not a gang of workers moves upon the great spread of properties. The exhaustion of rich veins, difficulty of competition with metal produced at less expense in a fallen market, coupled with tangled litigation, has brought back silence to this strange spot in the mineral-strewn mountain spurs that here crowd down almost to the sea.

The day of La Higuera is not long past; the mines of this extraordinarily rich region were actively productive during the present century. But a similar fate has already closed down very many smaller groups of mines, as it closed down smelters from Arauco to Antofagasta. In the prosperous days of the industry last century, when Chile was the greatest copper-producing country in the world, a big fleet of sailing ships, copper-bottomed, fast, with a famous list of captains, voyaged constantly between Swansea and the Chilean coast by way of Cape Horn, bringing British coal and merchandise and returning with bar copper or rich ores. A whole colony of Welsh set up the first scientific furnaces in Herradura Bay, just outside Coquimbo Town, and at a dozen points the little smelters of Copiapó and Coquimbo were busy; simple methods were used with profit, and many Chilean residents recall the time when the stem and stalk of the *cardon* were always used to obtain a fine clear fire when annealing copper.

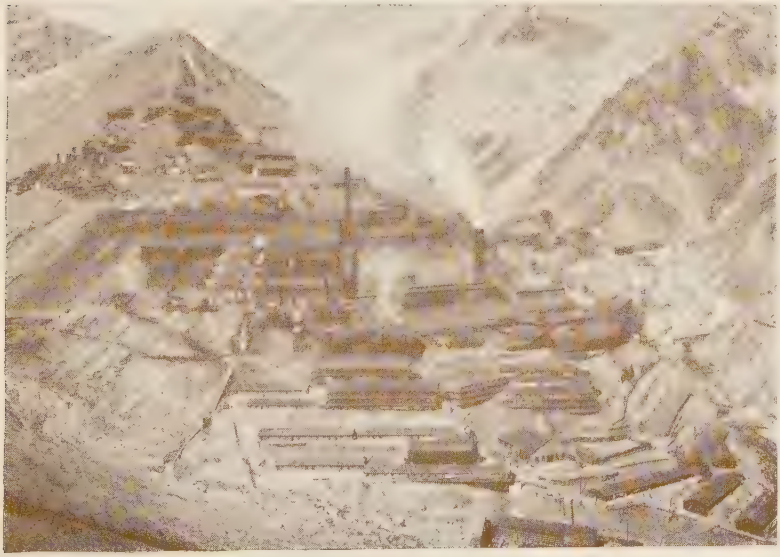
El Teniente and Chuquicamata

The most spectacular of the large copper mines in operation today in Chile is that of El Teniente, situated on the rim of an ancient crater of the Andes east of Rancagua, the nearest main line railway station. Sewell, the little town of mining employés, is connected with Rancagua by the private line of the Braden Copper Company, 72 kilometres in length, climbing from Rancagua's altitude of 513 metres, or about 1600 feet, to the mining camp's height above sea level of 2140 metres, or some 7000 feet, on the side of a terrific gorge in a tangle of rocky mountain shoulders and peaks. The main ore bodies lie above the site of the town and plant at altitudes ranging from 9000 to 11,000 feet, one peak, El Diablo, on the crater's edge, rising to 13,000 feet.

The amount of copper ore found in masses on the circular rim was calculated at the beginning of 1920 as 174,500,000 tons of 2.45 per cent, with (probably) 92,000,000 tons of 1.91 per cent ore in sight, with, in all probability, other large deposits in the vicinity. The main body now under exploitation yields a low-grade ore containing an average of 2½ per cent of copper in the form of sulphides. The ore is brought down to the plant by a railway line protected by sheds from the deep snow falling and standing for six months of the year; is crushed very fine, treated by the oil flotation system about which so much litigation has raged, and smelted by three processes during which the copper is freed from sulphur and iron. A small quantity of gold and silver remains in the bars shipped to market. Crushing 5000 tons of ore per day, a production of 100 tons of bar copper is at present possible; plans are also under way for new mills at a snow-free site on the rail-



Sewell Camp at Night.



Sewell (El Teniente Copper Mines) near Rancagua.

way line to Rancagua, at a spot where the junction of the Coya and a canal from the Cachapoal River forms a waterfall of 422 feet, yielding hydraulic power sufficient for the generation of 40,000 H.P. A new power house recently completed, on the Pangal River, another near-by Andean torrent joining the Cachapoal and Coya, adds to the equipment by which the Braden Company contemplates 10,000 tons of daily crushing, operations which should result in the production of over 70,000 tons of bar copper each year. Paralysation of international markets has so far checked the materialisation of these plans, and during 1921 the plant was operated at no more than half its capacity. The most prosperous year which the mine has had so far was that of 1918, when El Teniente produced nearly 35,000 metric tons of bar copper, out of the Chilean total production of rather more than 102,200 tons: a year later, 1919, the Braden Company sold and shipped only 10,000 tons of bar copper.

Rancagua, a somnolent little town lying about 70 miles from the Pacific, has no direct rail communication with the sea, and derives what liveliness it possesses from its position upon the main line to Santiago, its chief market, and as the terminus of the Braden Company's electrically-operated line to El Teniente or rather to Sewell — which has an older name, Machalí. At times the activity resulting from the mine's access to this town, and this town alone, is regarded without any pleasure by the townsfolk, for when strike trouble occurs there is likely to be a descent of discontented workmen and families. Such an occasion occurred at the time of the disorders at the end of 1919, when an army of expelled men with their families walked down the narrow track from Sewell to Rancagua, and although the journey of 72 kilometres occupied some

three days, and the spirit of the strikers was reduced by their experiences, Rancagua was alarmed and embarrassed by their presence.

A curious mixture of workers finds its way to this and other mining camps of Chile. The bulk consists of the hardy Chilean himself, concerning whose good qualities no employer of intelligence and feeling has any doubts: he is strong, trustworthy, kindly — but can be roused by drink or anger to violence. Treated well, he is the best element among massed groups of workers. But side by side with the genuine and sound Chilean is not only the malcontent roaming from north to south, from camp to camp, according to his own will or the exigencies of the Ley de Residencia, but the "hard case" from half a score of different countries. The mines are refuges for every variety of man who is down and out: they offer fertile ground for the sowing of Bolshevik propaganda or the seed of the I. W. W. of California, whose flag has been seen more than once flaunted in Chilean streets. The curious artificial life of the camps, with its poor rewards, the lack of healthy recreation, of the sight of the horizon, of birds and fields and flowers, of any interest at all but that of daily toil, lends itself to the development of grievances.

From Rancagua to Coya the line is open to the public, the pleasant and famous Baths of Cauquenes lying in the deep green gorge of the Cachapoal River followed by the track. Casual visitors to the camp at Sewell are however not encouraged: there is a wary eye kept upon possible purveyors of such forbidden joys as alcoholic liquors. El Teniente is as "dry" as managerial care can make it, but the fact that 1200 to 2000 bottles of whisky and brandy are seized every year by the camp detectives without putting any end to the attempts of the *guachucheros* (bootleggers) appears to prove that

enough liquor gets through to make the business pay. Despite this lack of welcome to the unintroduced stranger, however, Sewell is hospitable to the visitor, and any accredited person receives pleasant courtesies.

The rail automobile which takes such visitors from Rancagua to the camp offers by far the most agreeable form of travel; the bright green fields and sub-tropical verdure of the sheltered plain country gives way to deep folds of mountain spurs, and presently, rising into colder air, vegetation is reduced to a few hardy shrubs and mosses, and the violet and tawny shoulders of the Andes rise from the banks of the racing river. When I visited El Teniente the mountains were bare; their rocky sides, steep, incredibly scored and peaked, took on at sunset and dawn brilliant hues of rose and flame; but before I left the first snow fell, transforming the whole country in a single night. A thick blanket filled the crevices of the sheer rocks, black ridges and points alone emerging; the piled tenements of the miners, clinging like birds' nests on the face of a cliff, were blanched, half-buried, pathless. Communication with the outer world, by the single line down the ravine to Rancagua, was actually not much more restricted, but with the blocking of even the few mountain tracks open in summertime the isolation of the camp was emphasised.

There are about 2800 miners engaged at El Teniente, but the total population of the camp, including the workmen's families, the officials (chiefly North Americans), employés of railways, stores, etc., is usually over 12,000. All this artificial town hangs precariously on a steep slope immediately opposite to the jagged crater where the huge copper deposits are embedded. Formerly, rows of camp buildings were built on the mine's lower slope, but avalanches of soil, rock and snow neces-

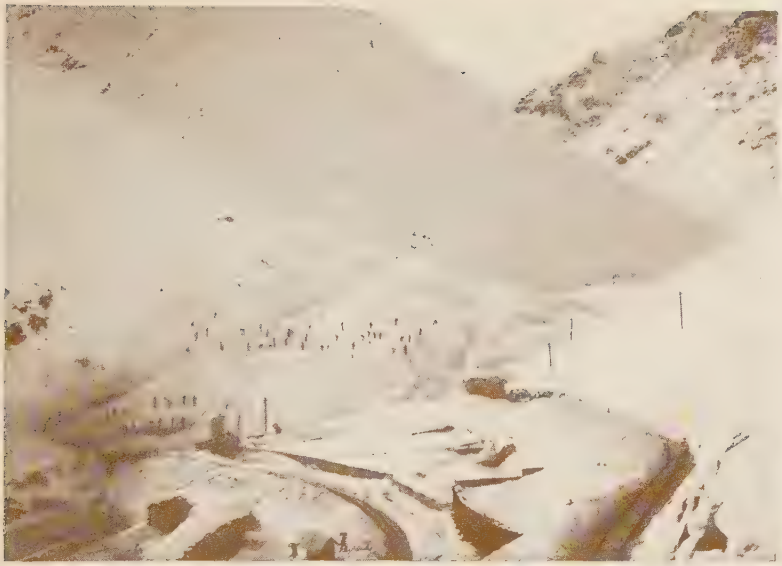
sitated the removal of dwellings to the present site, at the 7000-foot level.

Scarcely a sign of mining operations is visible from across the mountain chasm, although work has been going on here for at least 200 years. Owing to the treacherous nature of the country rock and danger from snow slides during six months of each year, the ore bodies are now attacked from below; entrances to the intricate system of shafts and subterranean passages are lost in the rugged crenellations of the old volcano. Yet the place is honeycombed: one tunnel, starting from the more recently approached Fortuna side, runs all round the three-quarter-mile-wide crater; there are innumerable hoists, ore-passes, shafts, galleries and tunnels, that, with the railways and powerful machinery and gangs of workers, comprise an industrial town hidden in the mountains.

The second large copper property operated by the Guggenheim interests in Chile is at Chuquicamata, in the high deserts of the province of Antofagasta, at about 11,000 feet above sea level. The region has long been famous for its copper-ore deposits, and small, rich veins have been worked during and since colonial times.

Most of these high-grade ores have been exhausted near the surface, whatever may lie hidden in the heart of the region: the principle adopted by the Chile Copper Company, as that of the Braden, is to attack large bodies of low-grade ore upon a big scale and in a scientific manner. But "Chuqui" is an open-air mine situated on a tawny desert, in extraordinary contrast with El Teniente, and the actual processes employed are different because the two bodies of ores differ in composition.

Chuquicamata is reached by way of the Antofagasta and Bolivia Railway. An all-day ride from Antofagasta



Sewell (El Teniente Mine) in the Snows of June.

Railway between Rancagua and El Teniente.

Port takes the traveller across the flaming nitrate pampas, waterless, without a sign of green, winding upwards until the air is chill and the wind bleak. At sundown, when the station of Calama is approached, the altitude of nearly 8000 feet has been attained. In the distance the lights of the mining camp flicker at a higher level; Calama itself shows a brilliant flare of green, for here is the river Loa and a little modern town with fields and orchards superimposed upon very ancient remains. Gold, pottery, and textiles showing Inca influence have been found in the old cemeteries of Calama.

There is from Calama a small branch line of a few miles running to Punto de Rieles, and some use is made of this to ship merchandise, etc., to and from the Chuquicamata camp: but a private line is projected, and a number of company motor cars traverse the road across the saffron desert between the main line and the mines, ignoring Punto de Rieles as much as possible. That ramshackle village is, indeed, little more than an impudent hanger-on of the big works; practically every little frowsy shack is a saloon or a gambling-den, more than one of the most enterprising brothel-keepers being white ex-employés of the camp. Even were any serious attempt made to operate Chuquicamata as a "dry" camp, the existence of this terminus-village a mile away would counteract these efforts.

The great ore bodies of Chuquicamata lie in a range of low, pale-hued hills rising gently from the shelving, wind-swept, dust-strewn plain; the chief mass of ore is easily attacked by steam shovels placed upon four or five different levels cut along the face of the most accessible slope, a system of light railways carrying the blasted-out rock, often of the beautiful blue and green tints exhibited by copper sulphates, to the plant in a shallow saucer below. Here also are the residential

quarters of this isolated camp, where there is neither vegetation nor water, and a dust-laden wind prevails over the cold, widespread territory, bordered only by the snow-crowned peaks of such Andean giants as S. Pedro and S. Pablo.

The Chuquicamata ores are, chiefly, basic sulphates of copper, yielding about 1.7 per cent of the mineral. The present plant has a crushing capacity of 15,000 tons per day, which amount should produce 200 tons of bar copper. As work goes on all day and every day, this production if sustained would produce in twelve months over 70,000 tons of electrolytic copper, a quantity which Chuquicamata has not yet recorded; the mine's best year so far was that of 1918, when a total of 101,-134,000 pounds of electrolytic copper was produced, or about 45,000 tons. The leaching or lixiviation process is employed here: the ores, crushed fairly fine, are soaked in a solution of copper sulphate for 48 hours, during which period the copper in the introduced ore is drawn into the liquid. This, when chlorine has been extracted, is poured into vats through which strong electric currents are passed, causing the copper to be deposited in metallic form upon the copper sheets suspended therein. The sheets and the deposited metal are melted and cast into bars, the process producing a high-grade electrolytic copper bringing top market prices. Eight hundred million tons of low-grade ore are stated to be in sight at Chuquicamata, and a plant capable of turning out 600 tons of bar copper daily is talked of.

Power for operating the Chuquicamata mine, works and camp is derived from Tocopilla, 100 miles distant on the seacoast, where the company's plant is situated. Transmission lines follow the course of one of the nitrate railways from the port to El Toco, thence running out

across the desert, where a highway also extends. Since no fuel exists in this northerly region, nor are there water-falls available, the plant uses petroleum imported from North America to generate the power required.

Chuquicamata employs about 2000 Chilean or Bolivian, with a small sprinkling of Peruvian, workers, housed under conditions which leave something to be desired. Many of the huts are made of sheetiron, with partitions dividing the rooms; the floors are of mud, and an opaque substitute for glass obscures the window space in too many cases. The better-class houses are insufficient for all the native-born workers, and it is not surprising that a degree of discontent has more than once been fomented in the camp. Daily wages run higher here than at El Teniente, averaging over nine Chilean pesos per day as against rather less than eight pesos, but this raised scale does not compensate for the greater cost of living and other disadvantages. Fuel is one of the serious difficulties; coal is almost unknown, and the employé's womenfolk are seen cooking over a charcoal brazier, or a fire made of an umbelliferous plant from the mountains (*llareta*), or a few pieces of wood brought from long distances. A great deal is said by the company of the Welfare Work Department: its most striking exemplification is in the big clubhouse which, well equipped and decorated, is however used almost exclusively by the North American officials and their families.

In addition to the two big mining plants at El Teniente and Chuquicamata, the Guggenheim interests in Chile include the old-established smelters at Carrizal and Caldera ports: the latter, in common with all the smelters founded during the last century, took only high-grade ores, the average of the mineral accepted here working out at about 10½ per cent of copper.

These works turned out over 5000 tons of copper ingots in 1918, but were closed in 1921, following the slump in prices.

Chuquicamata is operated by the Chile Copper Company, a subsidiary of the Chile Exploration Company; El Teniente is operated by the Braden Copper Company, which is owned by the Kennecott Copper Corporation, one of the Guggenheim creations also controlling Alaskan and Utah copper properties. The Braden Copper Company is stated to have shown a deficit of $1,500,000, United States, in 1919.

Pudahuel and Potrerillos

Geographically speaking, there lie between El Teniente and Chuquicamata two other large copper deposits acquired by North American interests since the European War. Between Santiago and the sea lie the Pudahuel mines, identified at least a hundred years ago, worked for their rich surface veins, and now owned by the Andes Copper Company, a subsidiary of the Anaconda interests. Immense masses of low-grade ores, rivalling those of the Guggenheim interests in extent, are said to be available, but although in 1920 projects for a big plant were under active development, work was slackened by depressed markets and the operation of the deposits is not yet in sight.

A similar fate has befallen the widely heralded plans connected with another Anaconda property, a huge deposit of low-grade copper ores at Potrerillos, in the Andean spurs east of the railway junction at Pueblo Hundido in Atacama province. The main ore bodies lie in a ravine about 12,000 feet above sea level and consist chiefly of sulphides and oxides. At the time when I visited the region in late 1920 the treatment of

these ores had not been decided upon, and no machinery installed, although an expensive housing scheme had been carried out at the mine. A railway between the tiny village of Pueblo Hundido, a handful of houses in the middle of an apricot-hued desert, and the high-placed mine were in operation; and a power plant, burning petroleum, had been set up at Barquito, on the coast a few miles south of Chañaral, the transmission lines running out across the sandy waste for some 130 miles.

Work on the Portrerillos installation was suspended about the middle of 1921, before a single ounce of copper had been produced. High above the copper deposits are extensive beds of sulphur, and upon the extraction of this mineral, needed in certain processes employed in treating low-grade ores, a certain amount of work has been done.

There are 16,000 mines of copper registered in Chile, covering an area of 57,000 hectares upon which the mining tax of ten pesos per hectare is paid. Of the producing establishments, Chuquicamata and El Teniente are by far the greatest, exporting in 1918 nearly eighty per cent of Chile's total production. From the Caldera smelters was shipped a total of 5217 metric tons; Catemu produced 3790 tons; Gatico, 3708 tons; Naltagua, a French property, 3653 tons. Small quantities came also from El Volcán, El Hueso, and the Chañaral smelters, also in French hands. For the last ten years Chile's output of copper in comparison with the total world supply has varied between 4 per cent in 1911 and 1912, and 8 per cent in 1918. By far the greatest producer of copper today is the United States, with a highest record of 880,000 metric tons in 1916, followed by Japan, shipping her highest recorded figure in 1917, when 124,000 tons was produced; Mexico,

75,000 tons; Canada, averaging 50,000 tons; and Peru, 45,000.

Iron

The story of Chile's iron deposits and works offers one of the most curious chapters in her mining history.

The most important of the identified deposits lie in the desert country north of Coquimbo, the fields at El Algarrobo and Algarrobito in the Department of Vallenar, Atacama Province, having interested a German firm some years before the war. No practical results were achieved, although the region recorded a small export of manganese, from the Astillas beds, until economic conditions checked these shipments soon after the beginning of this century. Proximity of quantities of manganese ore to the iron fields, reported as being of immense extent, has raised repeated hopes for the foundation of a great industry, but the crux of the problem is the absence of adequate fuel or water supplies, and the unproductivity of a sterile territory.

The only works so far established in connection with Chilean iron ores depend upon what is the most remarkable ferruginous deposit on the West Coast, paralleled only by the Itabira peaks in Brazil and the iron mountain of Durango in Mexico. El Tofo, some forty miles north of Coquimbo town, and fifteen miles from the Pacific, is a round hill practically composed of hematite ores running over 65 per cent pure, the quantity in sight totalling at least 300,000,000 tons. The hill stands among an imposing array of rolling mountains, and both dwellings and mine workings are daily enshrouded in seas of white mist.

Early in the present century this huge deposit was acquired by a French company, the Société Altos Hornos de Corral, which mined a quantity of the ores and

transported them by light railway to the little bay of Cruz Grande and thence to the south where, at the port of Corral in Valdivia province, a smelter was erected, the first experimental production of pig-iron taking place in 1910.

The company was fortunate in obtaining from the Chilean Government various privileges, including the concession of 58,000 hectares, or about 145,000 acres, of southern forest land, estimated to be capable of yielding 50,000,000 cubic metres of fuel wood. The Prudhomme process is employed at Corral; wood fuel alone is required, and an important item in the calculated income from the operation of the plant is that of the sale of by-products (charcoal and alcohol) obtained from the wood, in addition to the output of the blast furnaces. The plant was built to produce 50,000 tons of pig-iron annually, and would require for this purpose nearly half a million cubic metres of fuel wood; the expectations of the company have, however, not been realised, and when I saw the plant in 1920 it had been inactive for several years. A week of trial under the auspices of Chilean Government engineers headed by Dr. Manuel Prieto was undertaken in July of the same year, and an optimistic report issued: a few noteworthy points are quoted below.

With regard to the cost of production, the report states that the iron ore costs at Cruz Grande nearly ten pesos per ton (the peso in mid-1920 being worth about one shilling): but the sea freight, unloading at Corral, and transport to the smelter cost 14 pesos per ton. Despite the high freight charge, the cost of producing the 345 experimental tons worked out to only 152 pesos per ton, a quantity of the company's ingots finding a sale at 345 pesos per ton. If the calculation is correct that, working sustainedly, the smelter could produce

pig-iron at all-in costs of about 55 pesos per ton, the only problem is that of finding sufficient local or other South American markets prepared to take yearly 50,000 tons.

To obtain this quantity, the engineers estimate the employment of 70,000 tons of iron ores, purchased from El Tofo at 8.40 pesos per ton. The famous iron hill is no longer operated by the French Company, for during the war the deposits were leased to the Bethlehem Steel Iron Mines Company, and an extensive establishment created. A contract exists by which the Bethlehem interests guarantee to supply a maximum of 100,000 tons of ore free on board at Cruz Grande to the Société Altos Hornos, for thirty years.

If the fate, so far, of the Prudhomme smelter at Corral is misty despite high promise, that of the big installation at El Tofo is no less clouded. As soon as the Bethlehem Company took possession, large sums of money were spent on an entirely new installation. Land was acquired at Cruz Grande, an oil-burning power plant set up, the railway line rebuilt and electrified, and a loading basin for the Company's special ore-carrying steamers, each of 17,000 tons capacity, cut out of the solid rock. The basin is 500 feet long by 40 feet wide, and on the dock side are 17 chutes each with a storage space for 20,000 tons of ore, operating electrically, and built to discharge their contents into 17 hatches so that each ship would be loaded in four hours' time.

At El Tofo itself electric shovels attack the face of the hill on four or five levels; the crushing machinery is, like the ore-carrying outfit, the most modern that Bethlehem's experience has evolved; strings of dwellings for workmen and officials stand upon the spur leading to

the iron hillside. The Company's intention, I was informed by the sole official left in the silent camp, is to ship the rich ores of El Tofo to Sparrows Point, Maryland, where special equipment has been built to unload the Cuban ores imported by the Bethlehem interests. The haul from Chile is however considerably longer than from Cuba, and although transit by way of the Panama Canal has brought the Atlantic Coast of North America into closer commercial touch with the West Coast of South America, the cost of freight or other equally powerful reasons have prevented materialisation of the original plans. In more than one instance, wealthy firms making immense sums of money during the great war appear to have placed capital in investments far afield from which a return was not desired for reasons having a certain relation to the tax collector; and whether or no these considerations had any bearing upon the acquisition of large copper, iron, tin and silver deposits in various parts of South America by powerful companies, the fact remains that vast mineral resources have been added to the properties of a comparatively small group, and that their active operation may in the future affect international markets.

Early in 1921 announcement was made to the effect that a concession for thirty years of 140,000 hectares of forestal land in Llanquihue Province had been granted to a German firm, for the installation of large iron works. At the same time the concessionaires, who were stated to be engineers representing the Krupp firm, secured an option upon the Pleito iron ore deposits in Coquimbo and another series of mines in Atacama known as the Zapallo fields. Several Chilean newspapers, including the energetic *Mercurio*, took excep-

tion to the land grant, pointing out the possibility that Germany was evading the spirit of the Treaty of Versailles, prohibiting her from manufacturing arms or guns within her own territory, by setting up big iron and steel factories upon foreign soil; it was also objected that the territory conceded includes a considerable part of the forestal reserves left in South Chile. A strip of woodland two kilometres wide had been reserved by the Chilean Government between the concession and Lake Todos los Santos, and with this exception the German grant extended from the lake to the foot of Calbuco volcano, with water outlet to the Pacific by way of an arm of the Gulf of Reloncaví. The Petrohue River is said to offer power for large hydraulic installations, and two other and smaller streams also run through the grant.

Ore from the north would, according to the plan, be transported to wood-burning smelters in the south. But difficulties arising from the claims of property-owners in the conceded tract of forest appear to have checked the scheme; the concessionaires announced their withdrawal in early 1922.

The attitude of the Chilean Government is, quite naturally, that it is desirable for large industrial development work to be promoted: and that the concession of forestal land given to the German interests would have been gladly granted to other nationals making similar propositions.

Gold and Silver

In early colonial days there was a fair yield of gold from Chile, chiefly obtained from the sands of the southerly rivers and deposits, as those of Tiltil, situated in the mountains between Valparaiso and Santiago,

and the shining sands of the river beds of Huasco. It is estimated that from the days of the first settlement to the end of the fifteenth century Chile produced 131,000,000 pesos' worth of gold, 63,000,000 worth in the sixteenth century and 167,000,000 in the seventeenth.[1] After Independence and the encouragement of foreign enterprise, production rose in less than fifty years (1801 to 1850) to 226,000,000 pesos (all these calculations being reduced to pesos of eighteen pence for purposes of comparison), but weakened abruptly when the deposits of alluvial gold, eagerly sought and worked, became exhausted by the end of the century. The present yearly production of gold averages about 2,000,000 pesos, chiefly from the Alhué mines near Rancagua.

The present production of silver is also a shadow of its former record. Once upon a time rich silver mines were worked at Uspallata, near the Pass; these were already abandoned in 1820, when Peter Schmidtmeyer made his journey. Chile never rivalled Potosí, where travellers of the early sixteenth century (before the amalgam process was introduced in 1571) might see 6000 furnaces shining together at night upon the famous hill; but her mines recorded a splendid total in one quarter-century, 1876 to 1900, when 432,000,000 pesos' worth of silver was produced. Lowered inter-

[1] Betagh, writing of conditions in 1720, says that there were gold mines at Copiapó, "just beyond the town and all about the country likewise, which have brought many purchasers and workmen thither, to the great damage of the Indians; for the Spanish magistrates take away not only their lands but their horses, which they sell to the new proprietors, under pretence of serving the king and improving the settlements." He also noted the saltpetre, lying "an inch thick on the ground" in the north, and says that the country is full of all sorts of mines. About the year 1709 two lumps of gold found near the Chilean frontier, one of which weighed 32 pounds, was brought by the Viceroy of Peru, Count Monclove, and given to the King of Spain. In another washing place near Valparaiso belonging to priests gold nuggets are found, he says, ranging from a few ounces to one and a half pounds in weight.

national prices and the exhaustion of rich veins so reduced the industry that in 1915 only 1,000,000 pesos' worth was produced, and although later years have reached values of over 3,000,000 pesos, future great production depends upon new discoveries and scientific operation. The mining engineer still has much work to do in the deep folds of the Chilean Andes, while the sands of the islands south of the Strait of Magellan have yielded, and are likely to yield again under good management, rich harvests of gold.

Coal

The coal industry of South Chile owes its greatest impetus to the energy of Matias Cousiño, organised development dating from 1852; but mining for commercial purposes began as far back as 1840, when a field near Talcahuano began to supply the needs of Chile's first steamship line, forerunner of the present Pacific Steam Navigation Company.

The entire region of Chile from Concepción southwards to the Territory of Magellanes is dowered with coal deposits, but the richest region is a series of mines strewn for one hundred miles along the coasts of the provinces of Concepción and Arauco. Wealth in coal has brought a large number of factories and mills to the prosperous city of Concepción, was a factor in the establishment of the chief naval station of Chile in the fine bay of Talcahuano — the best-sheltered port of Chile — and developed smelting and metal-refining works at Tomé, to the north of Talcahuano, and in Coronel and Lota, farther south.

Many coal beds known to exist in the Chilean south are unworked as yet owing to lack of transport in undeveloped regions, but in addition to the big mines in

operation in the rich regions of Arauco and Concepción, a deposit is being worked near Valdivia (the Sociedad Carbonifera de Máfil) while the Loreto beds are also under exploitation in Magellanes Territory, near Punta Arenas. The product of some of the Chilean mines is of excellent quality, but the product was, before the war, insufficient in quantity and not of a grade rendering it suitable for all railway and steamship uses. It was therefore supplemented by hard steam coal imported from foreign countries; before the outbreak of war in 1914 British mines were shipping about 1,000,000 tons per year to Chile, Australia sent about 450,000 tons, and the United States sent small quantities that varied between 3000 and 100,000 tons. The supply from Welsh and Australian mines was, during the war, diminished almost to vanishing point, and at the same time imports from North America rose to three or four hundred thousand tons, and the Chilean home production was immensely stimulated.

Chile's producing mines are fourteen in number, twelve of these lying in the Arauco region; in 1909 production amounted to less than 900,000 tons, but had risen to over 1,500,000 in 1918 and 1919. Eleven to twelve thousand men were then employed, as against 9000 in 1911. The most important operators are the Compañia de Lota, Coronel y Arauco, a combination owning four mines and tributary railways, employing 3670 workers, and producing more than half a million tons of coal yearly. Next comes the Cia. Carbonifera y de Fundición Schwager, also situated at Coronel, employing 2800 men and producing over 400,000 tons; the only other company with an output of over 200,000 tons annually is that of Cia. Carbonifera Los Rios de Curanilahue, employing 1500 men. Both here and in the Lota mines the plant is operated by hydro-electric

power, and throughout the Chilean fields the standard of machinery and equipment is high. The general width of coal seams operated in Chile is from fifty to sixty inches.

The wages paid are about the same as for other mining and industrial work in Chile, ranging from five to seven pesos (paper) per day. The Coronel mines, many of which are deep-seated and run under the sea, pay at a higher rate, averaging eight and a half pesos, but the Loreto mine in Punta Arenas, where workers are scarce, pays its employés nearly twelve pesos a day.

Chilean coal miners work only 280 days in the year, but conditions are not always acceptable and there have been from time to time serious strikes; the last, occurring at the beginning of 1922, was said to be mainly fomented by the considerable foreign element.

Among the remaining coal companies of importance are the Cia. Carbonifera de Lirquen (Penco); the Cia. El Rosal (Concepción); and the Cia. Carbonifera de Lebu, owning three mines and a railway.

The price of Chilean coal responded to war conditions. In 1914 it stood at about 13 paper pesos per ton; in 1915 it rose to 25 pesos, and thence steadily climbed to 57 pesos in 1917, to 70 in the following year, and to 85 pesos in 1919. With the cessation of hostilities these prices, which were comparable with those of foreign imported coal, dropped; at the same time demand fell, fewer vessels requiring bunkering, not only because older fuel depôts became again available but because the extended use of the Panama Canal by international vessels is making itself felt more keenly. South Chile found its ports recording many fewer foreign vessels in 1919 and 1920 than in former years.

In the Lonquimay region, along the valley of the

Curanilahue Coal Mine, Arauco Province.
Dulcinea Copper Mine, Copiapó Province.
Chuquicamata Copper Mine, Antofagasta Province.

upper Bio-Bio, are deposits of petroliferous shales, upon which a big industry will some day be founded. The most hopeful reports suggest the presence of a great oil-bed, but it is undisputed that the superficial layers or *capas* yield 5 to 6 per cent of petroleum, the lower part of the bed yielding 12 per cent. In Scotland a percentage of 5 per cent is considered good enough, and the development of the prosperous North British industry could no doubt be duplicated in Chile — with adequate transport facilities. Manifestations of petroleum have been also identified farther south. Don Salustio Valdes, an enthusiastic Chilean mining engineer, considers that the most promising deposits are in the Province of Llanquihue, at Carelmapu, where the Cia. Petroléos del Pacifico has acquired territory; in Magellanes Territory, near Punta Arenas, where the Sindicato de Petroléo de Agua Fresca is operating; and on Tierra del Fuego, upon the north shore of Useless Bay. Natural gas escapes in considerable quantities in all these regions.

Borax is produced by a British company from a wonderful and beautiful lake-like deposit at Ascotan, on the Antofagasta and Bolivia Railway almost at the Bolivian frontier. Nearly half the world's supply comes from Ascotan, the pre-war export of Borax Consolidated averaging 40,000 tons, a quantity subsequently reduced owing to the imposition of a heavy export tax and high freight rates. The deposit lies at an altitude of over 12,400 feet with temperature ranging from 24 degrees below zero (Centigrade) and 32 degrees above, so that this well-organised company works under climatic difficulties accentuated by high winds, rain and snow.

Sulphur is abundant in Chilean mountains from north to south, a few thousand tons being annually

produced, chiefly for the use of the copper mines; lead, cobalt, nickel, aluminium, graphite and bismuth also exist in the highly mineralised north; deposits of manganese are worked on a small scale near Merceditas in the interior of the Province of Atacama.

CHAPTER VIII

AGRICULTURE

Area under Cultivation. — Oases in the Desert. — Farming in Central Chile. — Vineyards. —Wheatfields, Orchards and Sheep Farms. — Irrigation Canals.

"AGRICULTURE in Chile and Buenos Aires has formed their population, while the mines of Peru have extinguished almost all the Empire of the Incas." So wrote David Barry in his preface to the *Noticias Secretas* in 1826.

I think that no one who knows Chile today will dispute the suggestion that her fertile soil has chiefly contributed to her social well-being. It has brought white European settlers, able to rear families in a magnificent temperate climate; it has offered permanent homes and not a temporary field for the fortune-hunter. There is a spring of life about the farming region of Chile, a sense of energy, health and freshness that is extraordinarily exhilarating. Much of this land is still but newly opened: one may pass through hundreds of miles of land where the tree-stumps of the primeval forest still stand among the vigorous corn, where the farmhouse is but an impermanent thatched hut. But the dark rich earth, the lusty crops, the blossoming orchards and hedges, the green pastures with their sleek cattle, create a scene of genuine content. The holdings may be new, yet they are plainly homes. Chile possesses mines, but they drain rather than create populations; growing industries — weaving factories,

grain mills, and a score of new employments which tend to concentrate wealth and culture; but it is in her farming lands that the truest cradle of the race, the frankest and strongest people, the most cheerful spirit, is found.

In actual figures the amount of land under cultivation in Chile is not immense, yet the farmlands produce not only sufficient grain and fruits to serve the needs of the inhabitants of both fertile and arid regions but also ship a surplus to the exterior markets of Peru, Ecuador and Bolivia.

Government statistics add up the total of land assigned to "agricultural properties" or farms to 18,000,000 hectares, or about 45,000,000 acres. But not all this land is under cultivation. The area devoted to cereals, beans and peas, potatoes and vegetables, is reckoned as about 4½ per cent of all Chilean territory, or 750,000 hectares, equal to two and a half times as many acres; vines and orchards, 111,000 hectares; planted woodland, 32,000 hectares. The cultivated pastures (grass, alfalfa, clover, etc.) attain the figure of about 520,000 hectares; while there are nearly 7,000,000 hectares of natural pastures. Twenty-two per cent of all national territory is ascribed to forest and woodland, much of it either utilisable for industry or at least covering the ground with a rich vegetable detritus of great future value to the farmer. Twenty-nine per cent of Chilean land areas is regarded as completely sterile, or at least negligible under present conditions.

This proportion of uncultivated or barren country appears high at first sight, but three great areas must be practically excluded from possible cultivation, although unlikely and long-neglected regions have of late triumphantly proved their worth as sheep pastures.

The great, diversified and topographically fantastic Territory of Magellanes, comprising 71,000 square miles, has little to offer to the agriculturist.

Sheltered country as that in the vicinity of Punta Arenas produces certain field crops, while the limit of cultivable land both in Eastern Patagonia and upon the islands of Tierra del Fuego, Navarin, Brunswick, and other smaller groups, has not been reached with the establishment of sheep farms; but the barren and rocky lands on the borders of many channels, where blue glaciers creep to the edge of the water, and that part of the Strait region where the freezing gusts of the "williwaws" bend the heads of the drenched forests, is outside consideration until the climate changes.

Also beyond the vision of the farmer are the widespread, sun-scorched and waterless districts of the three northerly provinces of Atacama, Antofagasta and Tarapacá, covering more than 95,000 square miles of land: as well as most of the 9000 square miles of Tacna, whose final ownership is still undetermined. The third considerable region which is apparently destined to remain uncultivable is that of the rugged and broken foothills and heights of the Andean slopes of eastern Chile, where nothing lives but wild mountain birds and the hardy guanaco.

Reckoning in hectares, Magellanes counts an area of 3,214,000 hectares, or about 8,000,000 acres: yet only 133 hectares were under crops in 1919. At the same time the Island of Chiloé, with a surface of about 8600 square miles, had only 75 hectares in cultivation. As between the too-dry lands of the north and the too-rainy country of the south, agricultural advantages lie with the former, for wherever irrigation is possible the natural disabilities are at once overcome, and the rainless belt becomes magnificently fertile. The agricul-

turist of the Chilean lands below Puerto Montt is seldom able to risk planting a cereal crop, for even should the heavy rains not affect the fields adversely, the grain must be gathered green lest wind-storms should blow the ripened seed away. However, the discovery of the last few years that certain types of sheep (usually cross-bred Romney Marsh varieties similar to those reared in the Falklands) thrive in Chilean Patagonia, Tierra del Fuego and other once-despised Magellanic lands, has brought about an agreeable transformation in the agricultural industries, as in the revenue and population of the far south.

Oases in the Desert

Perhaps it is partly because they stand out in such sharp contrast with a barren background that such northern valleys as that of the Lluta, with pretty Arica town at its mouth, appear to be of such enchanting loveliness. In other regions, burning ochre deserts stretch away in dazzling sunlight, and suddenly one comes upon the tender lime-green fields of the Copiapó River; the emerald maize and alfalfa of the Loa; the Pica Vale, a strip of deepest green studded with millions of the golden globes of ripe oranges; or the exquisite Elqui and Huasco in the month when loads upon loads of grapes, peaches and figs are ripe. In every dip of the land where a stream flows down from the Andes, gardens and orchards bloom; careful intensive cultivation is the rule in north Chile, where the farming industry, has received an impetus since the nitrate fields swarmed with industrial camps, ready to pay big prices for every pound of fresh fruit or vegetables.

This cultivation of orchards in the desert is reviving enthusiastically, but is no more than the restoration of

ancient arts; before the day of Spanish occupation irrigation was extensively practised, and we know from the large burial grounds discovered near what are today small villages that certain parts of the arid country formerly supported considerable populations — as at Calama, at Chiu-Chiu, or at Arica itself. The desolation of former cultivated districts is sometimes ascribed to the war-expeditions of the Incas, sometimes to the destruction of irrigation works by the Spaniards, sometimes to the action of earthquakes which have diverted rivers from their original courses, and is certainly to be atributed in many cases to the character of the streams, rushing from mountain heights with tremendous force, washing away fields and defences, and leaving wide, stony and sterile beds to mark their ruinous course.

Tacna province, with Arica as the port and Tacna City as the capital, is looked upon hopefully today as a source of supply of sugar and cotton for Chilean mills; both these commodities are now imported. With sufficient water, this little province of 40,000 inhabitants can produce also enough tobacco for Chile's internal consumption. The Sociedad Industrial Azucarera de Tacna, formed at the end of 1920, hopes to plant 8000 hectares in sugarcane, to obtain from the harvest of each hectare ten tons of sugar, and thus to fill the Chilean demand for 80,000 tons of sugar per year. Apart from this enterprise, whose results are awaited with interest, a number of small landholders already produce a little sugar, and find a ready sale for the almonds, olives, walnuts, peaches, figs, green fodder and vegetables cultivated. The splendid cotton of Tacna province is eagerly purchased by South Chile's mills, but the export is small as yet, amounting only to a few hundred tons annually; there is every induce-

ment to immense extension of the cultivation of this fibre, and when present plans to canalise the waters of the Caplina River and of Lake Chuncara are completed, the little province will multiply its 230,000 hectares now under cultivation.

Tarapacá Province is curiously situated as regards cultivation; to the north a few rivers reach the sea, as in Arica, but from Pisagua southwards the great nitrate beds lie like an immense dry lake parallel with the coast, and a dozen little rivers flowing down from Andean foothills disappear in the desert sands long before they reach the eastern edge of the nitrate pampas. But each one of these rivers is a green ribbon of fertility, and Tarapacá ships its luscious oranges to the nitrate camps, and by train all the way to Pueblo Hundido in Atacama.

Antofagasta's one considerable river is the Loa, subject to strong floods, but irrigating small fields all the way. There are but 121 farmers in the whole province of 46,000 square miles, cultivating less than 3000 hectares. Sites of old pre-Spanish towns along the Loa's banks are proof of centuries of utilisation of its waters.

Copiapó possesses two charming oases in the desert. The first and most important is the ancient town of Copiapó, long famous for its copper mines, but depressed by the drop in metal prices after the close of the European war. The second is Vallenar, whose bright setting of little fields, peach trees and vines, is a joy to the eyes after a journey through the copper country. Neither region produces enough foodstuffs for its own maintenance, and there is no agricultural surplus to sell. The whole province of over 30,000 square miles has less than 20,000 hectares under irrigation.

Coquimbo Province is generally regarded as the northern limit to general farming; it is a small province, including only 13,500 square miles, shouldered by the Andes that here push down within eighty kilometres of the Pacific Ocean, but it is prosperous and enterprising. The population is about 250,000, of whom 4500 are farmers; of the remainder the great bulk are interested in mining small veins of copper, an industry which has been handed down for generations as a kind of technical inheritance in northern Chile. I know a Coquimbo farm, excellently managed, situated a few miles outside Coquimbo Port and its older sister, La Serena, which is a revelation of what can be done under the difficulties attendant upon almost constant drought — for the rainfall does not usually attain two inches in the year — and a temperature which remains steadily at about 60° Fahrenheit. The livestock were, in the period of greatest heat, driven eastwards to the hills, many landowners upon the coast following the system of buying supplementary land in the cordilleras in the hope of finding at every season a few patches of pasture. John McAuliffe is one of those Britons who identify their fortunes with those of Chile, and forty years' residence, with experience of ship-building, mining and farming, has made the genial owner of San Martin a resourceful producer and distributor.

Coquimbo Province possesses 1,500,000 hectares of land devoted to agriculture, of which 20,000 are irrigated and about 25,000 are "artificial" pastures. Vineyards on a commercial scale, orchards of figs and other sub-tropical fruits, as well as fields of wheat, maize and barley, produce a surplus exported from Coquimbo.

Farming in Central Chile

South of this province Central Chile begins. Aconcagua, Valparaiso, Santiago, O'Higgins, Colchagua and Curicó are among the most delightful regions in the world, with a perfect climate, fertile land, access to markets, and employés who are not yet impressed with the views of the I. W. W. which have troubled the waters of Chilean industry so effectively during recent years. It has been the writer's good fortune to see something of the life upon several estates devoted to general farming and livestock, upon fruit and alfalfa farms, and upon one of the finest vine-growing and wine-making properties in Central Chile. I cannot imagine a more agreeable life than that upon these estates.

In the first example, the lands are situated upon the Aconcagua River, extending from this barrier in a half circle enclosed by a horse-shoe of wooded hills. The river is a typical Chilean watercourse, widespread, turbulent, spreading into five or six branches on a wide and stony bed. When the snows melt and the stream comes down with great force, it is almost impassable, although the sturdy Chilean horse, extremely intelligent and well trained, will always struggle across safely so long as the reins are left loose. The farm includes about 250 acres of irrigated land and about 2000 acres of hillside. The jealously-watched water rights are regulated by a set of special laws, and as there is just about enough water for the service of the farms along the Aconcagua's banks, with none to spare, water-stealing is a black crime. Quebrada Redonda is a mixed farm, upon which a couple of hundred sheep, as well as cattle and horses, are fed: the fields are brilliant with lucerne, wheat, beans, barley and Indian corn. In the kitchen garden are peaches, walnuts, artichokes,

oranges, pears, plums, celery — in fact, all fruit and vegetables that grow in temperate or sub-tropical zones. The lawn edges are gay with roses and iris, chrysanthemums and lupins. All the flat lands are fertile: no fertilisers are needed, but leguminous crops are grown in rotation with cereals. The milk of the Chilean cows is first-class in quality and produces cheese — made daily by the simplest process — that finds a ready sale in local markets.

The hill lands, invaluable upon a Chilean farm, offer plenty of food for the young cattle in winter. Within a few days after the first heavy rains the brown slopes turn green, and the cattle are driven up to crop the new carpet of young grass. The woodland yields sufficient timber to supply the domestic needs of the *patrón* and the *inquilinos* (farm hands working upon a special system), but there is no growth of big trees. The graceful, evergreen quillay is the base of quite a considerable industry, for the bark is highly saponaceous, and, stripped and dried, is sold in all the public markets in Chile. The maiten, another thick little tree, is also cut for firewood; the litre offers useful lumber when of sufficient size. Down by the water stand rows of familiar willows, their branches draped with the scarlet flowers of the parasite quintral; and on the slopes are scores of bunches of blue-green dagger-shaped leaves enclosing a stalk crowned with a violet flower-head. This is the chagual, whose young stem is eaten in springtime, a lovely period when pink wild lilies clothe the rocky slopes and a myriad flowering trees and shrubs scent the clear air. Many of the aromatic leaves and barks for which Chile is famous are used to make medicinal decoctions, beloved of the working classes.

Adjoining this property is another fine farm, also operated by an energetic country-loving Briton; here

lemons and other citrus fruits are grown in well-kept orchards and the fields are given over to alfalfa and hemp, grown in rotation with root crops. Chile has no warmer advocates of her attractions than the owners of Quebrada Redonda and its neighbour, but both farmers lay stress upon the need for personal attention to every detail and constant residence upon the property, even with the best *mayor-domo* performing the duties of a farm bailiff or estate steward. It is also emphasised that Chilean lands are not for the worker without capital. In this coveted region, in fact, costs run high, as the following data, owed to Mr. Geoffrey Bushell, demonstrate.

The average cost of good irrigated land, near the railway, in the Central Valley (from Aconcagua to the Maule) is about 4000 paper pesos per *cuadra* of some four acres: or say £50 per acre with exchange at twelve pence to the peso. To this should be added £50 per cuadra for the purchase of horses, cattle and implements, and another £50 per cuadra should also be allowed for fencing, drains, repairing or putting up buildings, expenses frequently renewed even when a farm is in good running order. Land in less accessible regions is less costly, but transport in Chile depends upon railroads, since the highways are out of action in the rainy season, and it is worth while to avoid trouble by a greater initial outlay. No farm is cheap if its products cannot be sent to market.

When the estate is in good running condition, returns come quickly and markets are excellent; a profit of 12 to 15 per cent upon invested capital is usually expected, but may rise to 20 per cent. Alfalfa can be cut at least three times a year, and always finds a ready sale: potatoes, wheat and barley, beans, hemp, aji (red pepper), all do well and are good selling crops. Potatoes, for

example, yield 300 bags (of 100 kilos each) to the cuadra, and bring fifteen to twenty pesos per bag in the Valparaiso markets.

Animals can be kept out of doors all the year round, and the stock-fattening and dairy businesses are both good. Fruit cultivation, apart from such good carriers as lemons or oranges, is not recommended, since quick access to markets is lacking and selling organisations do not exist.

In order to buy, stock, equip and operate a farm and to wait a year for returns without inconvenience, a farmer taking up land in Central Chile should have £15,000 ($75,000 U. S. currency). He needs at least fifty cuadras, or 200 acres, of irrigated land, as well as some wild bush, preferably hill country. Workers are never abundant in South America, but the *inquilino* system retained in Chile tends to keep generation after generation upon the soil, and no good farmer lacks help in spite of the higher wages offered by the mining industry. Attacks have been levelled against the inquilino system, yet it works well in practice when estate-owners are just and a personal interest taken in the worker's welfare. The men live upon the estate with their families, are given a cottage rent free, a strip of land of generally one or two acres, and sometimes the use of ploughs and other farm implements; a horse and a few domestic animals are usually owned. One pound of bread and one pound of beans are given daily, cooked if so preferred, and one peso per day in cash. On the farms visited by the writer the houses of the farm hands were sound and clean, and the families appeared cheerful and content; I heard warm praises of the Chilean worker from employers.

The life of a farmer in Chile, it was generally agreed, is pleasant; constant attention is required, but rewards

are sufficient and the delightful climate compensates for many difficulties. The open-air life, constant horseback riding, and the sense of freedom in a country not too densely populated, attract many Europeans, lamenting nothing more than the absence of certain forms of sport. There is fair fishing, for instance, in the fast streams from the Cordillera, but there are no sporting fish; no hunting, but good shooting in wooded or open country. The partridge and tortolita fly well and fast, and give almost as good sport as grouse; snipe and quail are also to be found in the central regions.

Vineyards

In this same region of the Aconcagua Valley are some of the best vineyards and wine-making estates in Chile. The great Panquehue property, one of the Errazuriz estates, is a magnificent sight with its endless rows of trained vines bearing white and black grapes, stretching across the rich brown lowlands to the foot of the Andean spurs, where all cultivation ceases, and where valuable peat has been identified in vast stretches. Here are 2000 acres devoted to viniculture, and from the fruit of the low-trimmed branches is produced each year 2,000,000 to 3,000,000 litres of wine, chicha and brandy. Chilean red and white wines are of sound and pleasant quality, superior to the Mendoza brands, owing to greater suavity; some of the native-made "Sauternes" are practically indistinguishable from the French original. It is astonishing to realise the simplicity of this ancient industry of wine-making, for although Panquehue has today a machine crusher, and a mechanical press, an automatic bottler, etc., there is something primitive and ample in the process. The *bodegas* (cellar warehouses) of the estate are immense vistas of cool stillness,

the huge vats looming high in the semi-darkness beneath a succession of great arches. This estate, with its enormous and luxurious house of the owners, its settled population of workers, its self-supporting crops and fine livestock, has almost a feudal atmosphere. Altogether, Chile has 90,000 hectares, or say 225,000 acres, under grape culture, about ten times as much as California in her pre-prohibition days.

While these vineyards of the central provinces are in very fine condition — extending west from Santiago to within sight of the sea on the beautiful slopes towards Valparaiso — the real heart of the grape country is farther south, where also lie the great food-producing regions of Chile. The great grape country is spread over Curicó, Talca, Maule, Linares, Ñuble and Concepción provinces, while the wonderful valley of Lontué is one great vineyard, with over 10,000 acres under cultivation. Estates follow in a long succession, some able to boast of model villages for workers and thoroughly up-to-date methods of wine-making. The product of Lontué is sold not only throughout Chile, but is shipped to Argentina, Peru and Colombia. "Dry" laws in Chile, advocated by Dr. Fernando Peña, do not seem likely to cause the extinction of viniculture here, if only for the reason that the use of wine is scarcely ever excessive among the native workmen, or in the educated classes. The industry is extremely important to Chile, is chiefly in the hands of Chileans-born, and represents a very large investment; these considerations would not, however, preserve the vineyards ultimately if the effect of their existence were pernicious. The facts appear to be against any idea of this kind.

South Americans in general inherit the temperate habits of the Latin, and when strong liquors cause

trouble amongst such closely crowded groups of workers as one finds in the northern mines, badly made spirits and not wine are to be blamed. Against the disembarcation of imported spirits the workers of the north rose in arms, in 1920, procedure echoed in Punta Arenas a little later, and an investigator sent to the spot by the *Mercurio* of Santiago reported that for every pint of good southern wine sold in Taltal, there were twenty pints of noxious alcohol — much of it made on the spot in amateur stills.

Wheatfields, Orchards, and Sheepfarms

Cereal culture, whether of maize, wheat, barley or other grains, exists throughout Chile, but from Coquimbo to Chiloé are the great fields of *trigo blanco* and *trigo candeal* — the latter, hard wheat, grown chiefly upon 20,000 acres in the north of the Central Valley, and the former upon 1,000,000 acres, chiefly in the provinces of Maule, Linares, Ñuble, Concepción, Bio-Bio, Malleco, Cautin, Valdivia and Llanquihue. The total wheat crop is 5,500,000 metric quintales, worth 16,000,000 pesos. It is in the great fertile region of the south that one finds the largest number of small farmers, for most of this agricultural country has been opened during the last fifty or sixty years, and no great ancient estates exist. Valdivia and Llanquihue were developed mainly by the efforts of settlers from Central Europe in the middle of last century, while old Araucania was not finally opened to white settlers, whether foreigners or Chileans, until the punitive expedition of 1881 broke down the frontier for ever. Land was parcelled out in comparatively small estates, and as a result Chile is fortunate in counting about 97,000 land proprietors; of these, 65,000 owners farm less than 50

acres each; 25,000 others farm holdings of less than 500 acres; 5000 estates are between 500 and 2500 acres in extent; and only 465 proprietors are possessed of estates totalling over 12,000 acres.

To create these southerly farm lands great forestal areas have been necessarily denuded, and a good deal of work is required to keep down the luxurious growth of creepers, wild bamboos, ferns and undergrowth. But the southern agriculturist is spared the constant preoccupation of the northerner as regards water supply. Chile has little marsh or swamp country today, although the presence of large peat beds is eloquent of ancient bogs, but the south is very well watered. Too well watered, in fact, in some localities, Valdivia's 115 inches of annual rainfall being well outdistanced by Chiléo's 134 inches; the genial softness of the climate saves these localities from the unusual unpleasant effects of such heavy rainfalls, for if it is almost true that in Valdivia it rains every day, it is also true that the sun shines every day.

Between the Maule River and Lake Llanquihue the whole country of Chile is like familiar ground to the traveller from well-tended countries of Western Europe, an impression specially keen in Chile's autumn, March and April. Orderly apple and cherry orchards stand bordered by hedges hung thick with ripening blackberries; long level fields show the tender green of clover. Beside the rose-clustered farmhouse are neatly built stacks of wheat straw; in the meadows are fine sleek cattle and well-groomed horses. The fenced garden is full of flowers, of vegetables and herbs, and behind the house is a grove of walnuts and chestnuts. The farmer riding along a muddy road has the ruddy cheeks of the temperate zone, and the only strange note is

struck by his poncho and long jingling spurs. Rows of tall poplars, burned golden, edge the fields. As background to this ordered fertility there rise to the east the shining, silver-white heads of volcanos — Llaima, Villarica, or Antuco, or, farther south, Osorno and Calbuco — and from the lines of dark forest there run deep and silent rivers. The south is remarkable in possessing three navigable rivers, the Tolten, Imperial, and Valdivia; the Bueno is also traversed by small steamers in part of its course from Lake Ranco and is a channel for farm produce.

Wheat is harvested in the south at the end of March, but in May apples and pears are still being gathered and nuts are ripe. The big crops of strawberries, plums, and cherries are sent to jam and conserving factories, South Chile supplying the whole of the West Coast with canned fruit, while the export of fresh fruit to New York and London is a new industry with bright prospects.

South of Temuco the land is seen in three stages. Belts of primeval forests close down to the border of railway track or road, a green wall matted with the wild climbing bamboo, the trails of scarlet and purple fuchsias, or the slender vines of copihue with its beautiful rosy bells. Native beech and lingue, their feet deep in ferns, stand as a solid barrier, feathering at the top into thickly leaved branches; the wild witch-hazel's sweetly scented, creamy flowers break from every thicket.

That is the first stage: the next is encountered where a settler has recently broken ground, and corn springs between the blackened stumps of burned trees. A log hut, thatched, windowless, stands at the side of the clearing. In the third stage all signs of violence are gone; the forest is conquered, the cleared space smoothed and ploughed, the homestead enclosed with

a neat wooden fence. Rows of young fruit trees display slim twigs beside the farmhouse, and this already has its chicken-run, dove-cote, stable and pleasant meadow for horses and cattle. A chain of sawmills is seen in this lately redeemed country with its thick reserve of forest lands.

Between Valdivia and Puerto Montt lies a great potato-raising country; the land flattens out from Osorno to the edge of Llanquihue Lake, and here hundreds of well-managed farms flourish; a large proportion of the settlers possess German names, and their forebears brought with them, seventy years ago, the craft of the farmer. Today the population is Chilean. Farther south, upon the island of Chiloé, another group of foreign origin operates farms beside the native Chilotes: after the South African War ending in 1903 a number of Boers came here and, in spite of the marked difference between climate and conditions of the Transvaal and South Chile, remained and prosper.

Chile feeds about 5,000,000 sheep, of which number 2,000,000 have been raised in the far south, in the Territory of Magellanes; 2,250,000 head of cattle are distributed throughout the country — Tarapacá and Antofagasta owning about 600 head between them, while Tacna has 2500 — but by far the largest number, 2,000,000, are grouped in the provinces below Valparaiso. The country supports also about 400,000 horses, 55,000 mules, and 300,000 pigs. The wool clip of Chile averages 170,000 metric quintals, four-fifths of the total coming from the Territory of Magellanes.

Among the small farming industries of Chile are bee-keeping and flax-production; a little olive oil is made in the more northerly provinces, and the dried raisins, peaches and apricots of Huasco have earned much more than local fame.

The rise of sheep-farming and allied industries in Magellanes Territory is one of the great surprises of the century. Punta Arenas itself, founded on paper by President Bulnes in 1843, and tentatively settled in 1851, was for a long time nothing but a penal settlement: but a rising of the convicts drew attention to the region, the discovery of gold reefs and coal beds, as well as petroliferous shales, brought a number of enterprising people, and by 1897 the first flock of sheep, brought by the governor Dublé Almeida twenty years previously, had multiplied so fast that the territory counted 800,000 as the total flock. It was difficult to find a use for the sheep, and by way of solving this problem the first packing-house was established in 1905 at Rio Seco, about ten miles from Punta Arenas.

Four *frigoríficos* are now in operation, at San Gregorio Bay, at Puerto Bories (Ultima Esperanza) and at Tres Puentes, in addition to the first established. During the war the packing-houses exported meat products (frozen and conserved meat, fats, etc.) worth £1,000,000 sterling annually, and large fortunes were also made by the sheep-raising farms when the price of wool soared from sixpence per pound to twenty-two pence. The largest of the companies running sheep on a big scale is the Sociedad Explotadora de la Tierra del Fuego, which started operations in 1893, has a capital of £1,800,000, raised in London, and owns over a million sheep.

A fifth packing-house built at the close of the war and already in operation is situated in Puerto Montt, is British-financed and equipped, and aims at helping the situation of this part of the south, possessing a surplus for northern markets but lacking sufficient transportation for live animals.

Irrigation Canals

Irrigation canals have been in use in Chile for hundreds of years, those constructed by private estate owners watering a total of over 3,000,000 acres. Several of these are ambitious constructions, those diverted from such well-supplied rivers as the Maipo and Aconcagua extending in certain instances for over one hundred miles.

The great O'Higgins built a canal ensuring Santiago's water supply 150 years ago: a continuance of this wise policy of Government direction in a matter of national importance has been advised by many thinkers in Chile, but it was not until the closure of nitrate enterprises in 1914 forced the Government to find employment for surplus workers that irrigation laws were added to the Chilean code and bonds issued to finance the construction of four important canals. In early 1915 the creation of a new section in the Public Works Department inaugurated a period of great activity in the work suggested, and by the beginning of 1921 the Manco Canal drawing water from the Aconcagua was already completed, its forty-five miles of main length bringing water to nearly 8000 acres of land. The cost of construction was 2,000,000 pesos paper.

At the same time work was begun on the Maule Canal, drawing water from the Maule River; it is 115 miles long, irrigates 113,000 acres, and was built at a cost of 8,500,000 pesos; its completion represents an engineering feat upon which Chilean engineers are to be congratulated. A fall created by one of the branches of this canal offers 20,000 h.p. to users of hydraulic force in Chile.

The Laja Canal diverts water from the river of this

name, has a main length of 25 miles with distribution canals of 240 miles, and is lined with concrete for ten miles of its course where sandy soil is traversed. It is calculated that this canal serves 110,000 acres of land. The Melado Canal, drawing water from the river of the same name, is fifteen miles long, and irrigates 75,000 acres.

The Public Works Department also plans construction of canals drawing water from the Culenar River, to irrigate 12,000 acres; from the Nilahue, to irrigate 25,000 acres; and from the Colina, to irrigate 10,000 acres, while businesslike schemes for damming and utilising the water of seven of Chile's string of snow-fed mountain lakes in the south are also under way. All this work is due for completion by 1925, while studies of the strange rivers of the north that flow from the Andes and bury themselves in the sandy deserts long before the sea is approached have also been energetically carried on, with a view to salving these much-needed waters. Don Carlos Hoerning, Chief Engineer of the Chilean Reclamation service, says that the wonderful northern climate and soil respond to irrigation by producing crops five times as abundant as the normal rate in the south, justifying the expense of pumping and piping water.

Formerly, private enterprise was interested in irrigation canals only in the central farming regions, while the more generously watered south ignored the question; but denudation of the southern forests has brought about a change in this rainy region while the need for foodstuffs and the excellent rewards awaiting the farmer have valorised every acre of good soil, and today a large proportion of the canalisation projects of the Government refer to southerly regions. With little public land to offer, the Chilean Government's

new laws were drafted to reach the owner of large areas of uncultivated — and, if without water, uncultivable — land. When the newly inaugurated system is in full working order Chile should have at least 100,000,000 acres under the plough.

CHAPTER IX

FOREST AND WOODLAND

Extent. — Beech, Conifer and Bamboo. — Trees in Northern and Central Chile. — Plantations.

CHILE's heavily wooded country lies in the rainy south, and stretches from the stormy islands about Cape Horn through the long archipelagos and the provinces of Llanquihue and Valdivia, the forests gradually thinning out as they run northward through the old Araucanian country. The province of Cautín is the last stronghold of deep forest.

Altogether, the tree-covered area of Chile is estimated at 15,000,000 hectares, or about 37,000,000 acres; but at least two-thirds of this quantity must be left out of consideration as regards opportunity for organized commercial effort such as paper-pulp making. Lack of large "social" woods, and thin or patchy distribution, is of course a bar to industrial effort on a great scale, but there are immense stretches existing in certain regions, as in Valdivia, with nearly 2,000,000 acres of continuous forest; Llanquihue, with 1,500,000 acres; and Chiloé, with rather more than 1,000,000 acres.

An impressive picture is created by the density and extent of the southern forests of Chile, among the last of the great primeval tree-covered areas in the world. They are like immense green seas, filling mile after mile of basin-like valleys, running up the sides of the lower Andean spurs, and in the archipelagos often closing down to the sea's edge so thickly that waves break be-

tween the trunks. Up to the present the trees which have proved most useful are conifers, as the alerce, used for centuries by the native Indians for their canoes; the "Chilean pine" (*Araucaria chilensis*), yielding a big cone-full of kernels not unlike chestnuts, which must not be confounded with its kin, *Araucaria imbricata*, the "Monkey-puzzle" tree; the tall lumo of Chilóe, used for shipbuilding, and exported to Liverpool before the war; and two varieties of the native "roble," which are not oaks, as this colloquial Spanish name suggests, but varieties of beech.

The evergreen beech (*Fagus antarticus*) flourishes in Magellanic territory, and with its kin the deciduous *Fagus betuloides* and the cypress (*Libocedrus Tetragonus*) stands along the borders of Magellan Strait and on the glacier country of the deeply scored waterways extending northwards; its habitat does not extend north beyond the Chonos Islands, or about 45° of south latitude. All about Punta Arenas this beech is of great service, is used for house construction and boat-building, and still exists in large stretches of woodland. The famous Winter's Bark (*Drimys Winterii*), a beautiful tree whose aromatic-scented bark was noted by the earliest travellers, is also used locally. Many of the shouldering green heights that edge the Strait are clothed almost to the summit with trees that, changing to burning yellow and orange tints by the month of April, glow from the mists, their lower trunks thick with ferns.

Two wild bamboos of South Chile are common — the small climbing "quila," and the "colihue," sometimes growing thirty feet tall, and congregated in great social tracts known as "colihuales." Characteristic woodland of the Valdivia region is tangled with these bamboos, with thick ferns, and with such creepers as

the lovely *Lapageria rosea*, with its waxen pink or white flowers that retain the Indian name of copihue — the national flower of Chile, and the no less beautiful Philesia.

The handsome conifer called alerce (*Fitzroya Patagonica* Hook) grows in extensive woods or "alerzales" in the Llanquihue region, its base deep in ferns, the thickly-berried berberis (*Empetrum rubrum*) and other fruit-bearing shrubs, as the *Myrtus nummularia*. From these berries the native Indians made their fermented drink "chicha" in the time before Spanish soldiers and missionaries brought European fruit-trees to South Chile; today apples are chiefly used for the same purpose.

The alerce frequently grows to a great size. Dr. M. R. Espinosa, visiting the regions of its greatest occurrence in 1917, measured conifers of this variety which reached 115 feet in height, with a trunk diameter, at three feet from the ground, of four and a half feet. Another big specimen measured twenty-seven feet in circumference, and he speaks of yet another giant, whose old trunk was still to be seen between Puerto Varas and Puerto Montt, with a girth at the base of over forty-two feet. The alerce grows perfectly erect, providing splendid planks of such uniform quality that up to comparatively recent times these "tablas" were the recognised standard of barter in the Llanquihue and Chiloé regions, and were exchanged like cash for imported manufactures and foodstuffs. The wood is red in hue, resists exposure to water and air, and is easily worked, light and resilient.

The coihue, another fine timber tree of the south, growing in "colonies," runs the alerce a good second in height, the two bearing the reputation of being the tallest trees found in Chile; the laurel, the lumo, and

the canelo are not equally social in habit, but grow in mixed woodland and are therefore not commercially available to a like extent. The latter tree, the "Chilean cinnamon," has a scented bark and is sacred to the Araucanians, whose main festivals and ceremonies were traditionally held under the shade of the canelo's branches.

Forty per cent of the whole territory of Magellanes is estimated as forest: Llanquihue, Valdivia and Cautín possess a smaller proportion, for much magnificent woodland has already yielded to the axe of the settler, but there is still in all about 20,000,000 acres of timbered land south of the Bio-Bio River. Beyond Araucania the thick forest of the south gives place to light woods, with no large trees and none that are tall except the imported poplar, commonly known as the "alamo." All about Concepción the thickly-leaved little boldo is seen, yielding only small timber but much prized for the medicinal value of its leaves, from which "boldaina" is extracted; the thickets are full of the slim avellano, producing a nut closely resembling the hazel.

The wooded areas of the central region, especially in the well-watered parts of Aconcagua, O'Higgins, Valparaiso and Colchagua, are well supplied with lingue, maitén, litre and quillay. The bark of the latter is highly saponaceous and is sold in every Chilean market, but few of these trees yield planks large enough for construction purposes, and are chiefly useful as fuel.

The northerly, more arid country above Illapel frequently shows nothing but a thorny scrub of the mimosa family; one of these, the algarroba, is prized as a shade tree and for the green pods it produces, an excellent cattle food. When brown and dry, these pods yield a tannin used in curing skins, almost identical

with the divi-divi of Venezuela. Beyond Coquimbo even the thorny scrub and cactus disappear, and in the Andean heights of Tacna the only fuel that offers is that strange growth, like a mammoth fungus, the llareta, that must be dried for over a year before it will burn.

It is thus plain that North and Central Chile, where is the bulk of the population of the country, cannot supply their own needs for lumber; it is from the great southerly habitat of the alerce, the coihue and the Chilean pine that vast quantities of wood for industrial and domestic use must be sought. Sawmills begin to dot the side of the railroad soon after the Bio-Bio is crossed on a southerly journey, and immense piles of fine planks and logs stand beside the line all the way to Puerto Montt. Immense tracts of forest are still untouched for lack of adequate transport, although the conformation of Chile, and the large number of southerly rivers and lakes, help to render the problem soluble. Even without any great organisation, the south supplies lumber to the central and northern provinces while filling its own requirements and exporting a varying quantity. It is difficult to estimate the amount of Chilean timber exported, since statistics of the number of pieces, or even of "bundles" of planks, are alone available; the value, in 1919, of unworked timber exported from the country is officially given as 1,496,000 pesos of eighteen pence.

Forestal laws in Chile have been slow in application chiefly because for centuries a great deal more woodland existed than could be utilised; land was needed for cultivation, and it was no crime to burn large tracts in order that farms should be created. I have heard it maintained in Chile that such forest destruction or at least the clearing of wide strips through the heart

of certain southerly areas has been beneficial to the climate: that the Valdivia and Llanquihue region have been less lavishly endowed with rain and rendered more agreeable for settlers in consequence.

A few enterprising land owners have begun to replant woodland, growing plantations of spruce and eucalyptus for preference; for Chile is a hospitable host to all plants and trees brought from temperate zones.

A great deal has been said concerning the suitability of the South Chilean forests for making paper pulp, but up to the middle of 1921 no manufacture has been commenced. Expert opinion has proposed new plantations of eucalyptus, etc., owing to the non-social character of Chilean timberlands. Were the Chilean conifers more closely grouped the problem might have been solved long ago. Suggestions for utilising extensive thickets of bamboo, the colihue, have also been without result up to the present, but the recent careful investigations of a Swedish firm will, it is hoped, bear fruit. The south has plenty of water-power and easy access to sea or rail, two important points to be considered in connection with manufacturing industries.

CHAPTER X

COMMERCE

Home Factories. — Chilean Market Needs. — Sales to Foreign Countries. — Foreign Firms in Chile. — Trade-marks.

The position of commerce in Chile is better understood when it is realised that the country has no tropical products for sale. Apart from the extreme north, where rills of precious water redeem the preponderant desert, and where varying quantities of cotton, sugar and peppers are grown, farming is on a par with the farming of western or south-western Europe, or the temperate regions of Mexico. Chile has a surplus of wheat, cattle and sheep; a large production of grapes and wine; and, in the mineral field, offers her unique supplies of nitrate as well as about 6 per cent of the world's supply of copper. Timber from her southerly forests is chiefly used at home for house and ship building; Chilean coal finds its market in the Chilean factory regions or bunkering ports. Whatever the country has to spare of her cereals, fruit (fresh or canned) and other farm produce finds a ready sale in Peru and Bolivia; the copper is practically all ear-marked for the United States. Thus Chile's offering to the world outside the Americas is not large aside from her immense and greatly needed output of nitrate of soda.

The establishment of four packing-houses (*frigorificos*) in Magellanic territory, with another recently constructed at Puerto Montt, follows and encourages

the big development of the sheep-raising industry, with a view not only to supplying the non-pastoral north, but selling a surplus abroad. The wool produced, and formerly exported, is likely to be entirely absorbed by home weaving factories, to which an important addition has been recently made at Valparaiso.

Of great help in Chilean industrial development is the Sociedad de Fomento Fabril, and the work of three Government industrial schools, at Santiago, Chillan and Temuco, turning out electricians, chemists, blacksmiths, carpenters and other technically trained students.

A country with a temperate climate, hardy population, possessing plenty of fuel and offering securities to foreign capitalists and business firms, is likely to prove an inviting ground for the creation of factories; certain parts of Chile, in consequence, are developing home industries in a manner comparable to that of South Brazil.

A good start had been made before the European War, but as in many other South American regions the pressure of necessity brought about a remarkable and speedy industrial growth. Deprived of big quantities of manufactured goods, Chile increased or built national mills, and can today produce a remarkably long list of the goods she needs. Home utilization of raw materials of course tends to limit Chile's export lists and, diminishing her income from overseas, narrows her capacity for purchases in foreign countries, rendering her still more dependent upon nitrate exports for national revenues.

Chile's beds of good coal, with the addition of immense forestal areas offering lumber, and, also in the south, considerable water-power resources, form a sound basis for manufacturing. Below the river Aconcagua factories are thickly dotted, and south of the

Maule is a 600-mile stretch of country where new industrial towns lie like beads on a string, following the railroad track. Altogether, the large and small factories of Chile number twenty-seven hundred, counting every industry from Tacna to the Straits of Magellan; the group of important establishments employs 70,000 people, of whom 40,000 are men, over 17,000 are women, and over 5000 are children less than fourteen years old. Another 8000 people are employed by little industries. The value of the merchandise produced by these factories increased by nearly 50 per cent between 1915 and 1919, the latter year registering the manufacture of goods worth more than 765,000,000 pesos, Chilean paper. At an exchange value of twelve pence, this is equal to over £38,000,000. Santiago province topped the list with manufactured produce worth 280,000,000 pesos, Valparaiso following with 163,000,000 and Concepción coming third with 68,000,000 pesos.

Included in this output are metal goods, furniture, dried and tinned fruit: wines, beer, mineral waters, butter and cheese, lard, candles, soap, boots and shoes, wheat flour, Quaker oats, woven woollen and cotton cloths, pottery, chemicals, brown paper, bottles and other glass utensils, sugar and tobacco. Factories manipulating the two last-named commodities do not draw supplies of raw materials from Chilean soil but depend upon importations, chiefly from Peru. There are two sugar works, both Chilean-owned and operated; one is situated at Valparaiso and another at Penco (near Concepción City), where soft brown crystallised sugar is brought in sacks, and, after undergoing a series of new processes, including bleaching, is distributed to local firms in the form of soft white or cube sugar. The Chilean market rejects all sugars presenting any hue but that of pure white, I was informed when en-

At Constitución, South of Santiago.
San Cristobal Hill and Parque Forestal, Santiago.
Malleco Bridge, near Collipulli.

quiring at Penco why at least a proportion of the excellent brown sugar imported could not be distributed in that condition, and at considerably lower cost to the consumer. When the refinery was erected it was hoped that it could be exclusively supplied with raw material from local sugar-beet farms, and the failure as yet to produce these crops in quantity is emphasised by the retail price of sugar in Chile — fifteen pence per pound in 1920.

Also near Concepción, a few miles eastward following the curving banks of the silver Bio Bio River, is a British-owned and operated cotton-cloth factory turning out an average of 1,000,000 yards yearly, and working 276 looms. The machinery is British and yarns are imported from Manchester. All through the agricultural south are flour mills, of which half a score are owned by British firms; some of these installations are small and antiquated, but sixteen or more are equipped with the best modern machinery. As a result of this milling activity, Chile imports but little wheat flour, and this chiefly from Argentina to serve as a blend, her home mills practically supplying the whole of the country and leaving a surplus for export amounting to nearly 24,000 metric tons annually. The best customers for Chilean wheat flour are Bolivia (17,000 tons), Peru and Ecuador.

Concepción with its coal mines is fortunately placed for industrial development, and this with other similarly endowed regions and well-wooded and watered parts of the populated south are fast building up a list of manufacturing enterprises, most of them based upon local products. They are rapidly meeting home demands. The foreign visitor in Santiago has frequently received a surprise when permitted to see the extremely efficient Government munitions and instrument works,

realising that here is a South American state which is able to manufacture almost all the equipment needed for its army, from cartridges and rifles to saddles and field-glasses, the lenses of the latter being the only part imported.

When such a visitor has also seen tobacco and shoe factories, and the soap, candle and soda works of the Lever firm at Valparaiso (supplying, with the sister factory at Concepción, one-third of Chile's needs for these goods), he will receive another lesson at the model match factory at Talca, where the well-being of workers is exceptionally well studied and a crêche for the children of women workers is maintained. He should make a point of visiting, at the rich agricultural centre of Traiguen, a factory where beautiful furniture is made, and, following a sight of the sugar, flour, candle works of Concepción, and fruit-canning establishments at Chillan, he will see at Valdivia the most ambitious ship-building yards in Chile, turning out vessels of over 3000 tons. Here is also an interesting factory making tannin from the bark of lingue, a large boot and shoe factory, a cider works and several breweries and fruit-preserving factories. Sawmills line the railway between Temuco and Valdivia, and thence to Puerto Montt, where the new frigorifico has been established, and an old lumbering commerce connects with the town of Castro, on Chiloé, where boats are built. Below Chiloé there is no industry until the extreme south is reached, and here in the vicinity of the Strait of Magellan are four packing-houses serving the West Patagonian sheep farms; at Punta Arenas are sawmills, and the headquarters of a number of gold-mining companies operating the alluvial deposits of the southerly islands, a brewery, candle factory, foundry and shipyard. Dawson Island possesses another ship-

building industry, constructing wooden vessels up to 500 tons' burden. A series of scientific chicken farms also flourishes at Punta Arenas; 30,000 hens at Leña Dura yield an average of 200 eggs each, annually: the farm collects 5000 eggs per day, exporting them as far as Montevideo.

An immense impulse will be given to Chile's manufacturing industry when the hydro-electric developments planned during the last few years, and organised in 1921 by the Compañia Chilena de Electricidad, are completed. The creation of this new company is the work of S. Pearson & Son, Ltd., famous for brilliant water-harnessing and engineering in many other regions of Latin America. The Pearson firm initiated its interest in Chile by the purchase of the Santiago tramways which had been in German hands prior to the war, and were later operated by J. G. White & Co., on behalf of the British Government.

Pearson's decided to increase the power at the disposition of the local service, obtained solely from falls at La Florida, a few miles from Santiago, and effected a combination with Chileans of enterprise and engineering ability already holding concessions for big new hydro-electric development, including the Cia. General de Electricidad and the Cia. Nacional de Fuerza Electrica. Work upon the latter's plans was under way at Maitenes, inaugurated by the enthusiasm and skill of Don Juan Tonkin. The Pearson company decided to form a new organisation with capital sufficient to enlarge the scope of the work and to take over, in addition, other hydro-electric plans upon the Maipo and Colorado rivers. Proof of faith in Chile's future was given when Pearson's decided to domicile the new company in Santiago and to add to its assets the properties of the Chilean Electric Tramway and Light Com-

pany, as well as prestige and financial backing. The new company is the Cia. Chilena de Electricidad, capitalised at £8,250,000, with a debenture issue authorised up to £5,000,000; Chilean capital is interested to the extent of nearly three-quarters of a million pounds sterling.

Under the enlarged project, the Maitenes plant will be increased to develop 34,000 h.p.; the increase of an existing steam-plant in Santiago will bring another 27,000 h.p. into the market; and the development of plans for the harnessing of the Maipo and its tributary the Volcán at Puente del Cristo means the creation of a large hydro-electric station, capable of producing 65,000 h.p. When these installations are in working order, Central Chile will possess a force of 140,000 h.p. at the disposition of public services, domestic utilities and industry; the horizon thus opened is equal to that of the biggest manufacturing region of South America, S. Paulo in Brazil, where in the city alone about 30,000 h.p. is used to turn the wheels of industry.

The electrification of many Chilean railroads follows as a matter of course: no sooner was the new company formed than the Chilean Government signed a contract for the supply of electric power for the State line connecting Santiago and Valparaiso, and obtained a loan in New York for electric locomotive and other equipment; similar improvement is planned to Los Andes and for the reorganised Transandine line. Transmission lines, bringing power to Santiago from the generating plants, will carry force to Valparaiso by way of Llai-llai and Quillota, with substations at important points such as Tiltil, whence the big cement works of El Melon at Calera will obtain electric power, while Valparaiso's industries will share in the new impetus.

Chilean Market Needs

Chile's market needs are on a par with those of other South American countries so far as manufactured metals, especially machinery, mining and railroad equipment are concerned: in common with her sister states, she is also a buyer of such luxuries as fine textiles of wool, silk, and linen, perfumery and other toilet specialties, fine wines and spirits; also many utilities which she cannot produce, as print and writing papers, highgrade glass and ceramic ware, inks, paints and varnishes, cement, and sheet glass.

The best grades of cotton cloth are also imported, for the existing Chilean factories are limited in class of output; there is a considerable import of ready-made clothes, and of fine footwear, although it is but fair to add that Chile produces the best shoes made in South America and that her daintiest satin and kid footwear for women compare well with the output of the great makers overseas; Chilean red and white wines also outclass the vintages of sister states, but while the wealthy resident has plenty of money in his pocket there will always be a certain import of European champagnes and liqueurs, spirits and high-class wines.

Chile's purchasing power varies a good deal, fluctuating with the fortunes of nitrate. The value of imports during the last few years has swung from 153,000,000 pesos in 1915 to the high-water mark of 436,000,000 in 1918, after which a decline was experienced to 401,000,000 in 1919 and 350,000,000 in 1920. Certain commodities, with coal as the striking example, were almost blotted from the import lists during the European war, and with the encouraging development of the national mines in response to necessity, plus a greatly extended use of petroleum as fuel for in-

dustrial purposes, its pre-war place is unlikely to be recovered.

Looking down the lists of Chilean imports, the tendency towards importing materials in the crude state or simply prepared, for working-up in national factories, shows an immense increase since 1914; dependence upon national supplies also increases markedly. Metals in bars or pig, worth less than 400,000 pesos in 1914, were imported to the value of nearly 5,000,000 pesos in 1919; at the same time the value of imported lumber dropped from nearly 3,000,000 pesos to 1,250,000. The value of live animals imported — chiefly pedigree horses and cattle from the United Kingdom and North America, to improve the already excellent livestock of the Chilean farms — went up with a bound at the end of the war, totalling 12,000,000 pesos in 1918; the importation both of leaf and prepared tobacco shows systematic growth; but purchases of foreign meats, butter and cheese, show consistent falls.

The value of sugar imported rose between 1914 and 1920 from 9,000,000 to 25,000,000 pesos, but this movement indicates soaring prices rather than increased Chilean consumption. Purchases of yarns for weaving, of textiles, bags and sacks, and ready-made clothes, all displayed rises in the same period from 48,000,000 to 123,000,000 pesos; so also did crude chemicals, particularly essences for nationally elaborated and bottled perfumes. Imports of machinery, checked during the war period, followed the same curve as electrical goods, doubling their values in 1919 as compared with 1914.

Chilean purchases of tools and implements have shown steady increases, but the whole group of machinery for mining, agriculture and industry, including motors, boilers and electrical goods, does not far exceed 38,000,000 pesos (less than £2,000,000 at 20 pesos to the

pound sterling), while material for railways and other transport services costs some 20,000,000 pesos, or about £1,000,000 sterling annually. A fair average for Chilean purchases abroad may be calculated at £20,000,000 or inside $100,000,000 U. S. currency, at normal exchange.

Sales to Foreign Countries

When one turns to the other side of the ledger, to see what Chilean merchandise is exchanged for these imports, the dangerously dominant position of nitrate becomes evident. The total exports rose from 300,000,000 pesos in 1914 progressively to nearly 764,000,000 in 1918 (subsequently suffering violent fluctuations) and of the latter amount nitrate and iodine accounted for over 532,000,000, with another 109,000,000 placed to the credit of "minerales metálicos en bruto," of which the chief if not the sole representative was copper.

Products of livestock farming, chiefly hides and wool, have risen in export value during the last few years, and may be reckoned as worth an average of 35,000,000 pesos; vegetable products shipped out, with cereals predominating, have varied lately between 14,000,000 and 42,000,000 pesos; manufactured foodstuffs (dried or frozen meat, sugar, cheese, flour) have grown in value since 1914 from 7,000,000 to nearly 24,000,000 pesos; 1,000,000 pesos' worth of wine is exported; some pottery, glass and leather; and an increasing quantity of unworked lumber. But none of the farming, metallic, forestal or manufactured merchandise groups show signs of growing ability to equal nitrate in export values. Fortunately, the world needs Chilean nitrate, and there is no prospect of the rise of a rival which could meet the naturally produced chemical in price if drastic and feasible cuts were made in export taxes.

Disorganization of world markets since 1914 has affected the imports of Chile not only as regards bulk but also origin of supplies. It will probably not be possible for a judgment to be formed concerning the trend of trade until after 1922, when the flow of commerce may have resettled into regular channels. The general effect of the war years was to send merchandise north and south instead of east and west: a big increase occurred in the trade relations between North and South America, while the stride in commerce between the different South American nations was perhaps even more remarkable.

Intercourse amongst the sister nations has been delayed in the past by lack of coastal shipping and international railways as much as by laws of supply and demand. It has been frequently said that the different Latin-American states have nothing to sell to each other because they all produce the same class of goods, needing similar commodities only to be obtained from the advanced manufacturing countries. The latter part of the contention has a great deal more force than the first; South America must buy certain classes of goods afield, but a careful scrutiny of production lists brought to light, after 1914, many prime materials that could be exchanged, the impetus given to a coastwise traffic (*cabotaje*) along both Atlantic and Pacific Coasts proving the success of the new efforts. Several Latin-American states own maritime lines, but Chile and Brazil in particular aid the new inter-American trade development with excellent steamship and sail services under national flags.

Brazil doubled her sales to Chile between 1914 and 1919; Argentina increased the value of her shipments from under 6,000,000 pesos (Chilean gold, of eighteen pence each) in 1914 to 31,000,000 four years later;

Colombia and Costa Rica increased their sales of fine coffee (via Panama); Ecuador sent more cocoa and Peru more fruit and sugar — Peru's sales, worth 14,000,000 pesos in pre-war years rising to over 32,000,000 in 1919. Mexico's sales to Chile rose from a few thousand pesos in value to over 7,000,000, during the last six years.

Chile at the same time made big increases in her own shipments to Latin-American countries. Her sales to Argentina rose from 4,500,000 to 26,000,000 pesos at eighteen pence; to Bolivia, from 4,000,000 to 8,000,000; to Peru, from 3,000,000 to 18,000,000; to Mexico sales were doubled during war years. In some cases, as those of Uruguay and Brazil, there have been fluctuations so marked that no conclusions can be drawn: but on the whole the stimulus to inter-American trade has been well sustained.

With the United States a tremendous development of traffic took place. Exports from Chile rose from 86,000,000 pesos in 1914 to 489,000,000 in 1918; at the same time Chile's purchases from the United States, totalling about 55,000,000 pesos in 1914, soared to more than 203,000,000 four years later. In the case of both exports and imports, values were inflated and have not been sustained, although the development of the North American mercantile marine since 1914 is likely to promote a greater share of commerce with South America than was normal before the conflict. It is interesting to note that despite the huge expansion of North American trade with Latin America during war years, inflation in all directions was so great that the proportion of business done by the United States with South America remained the same as it has been for a hundred years — 5 per cent of the total exterior commerce.

A remarkable series of changes has been experienced

in the export lists of Chile during her economic life. In early days one of the most important exports appeared on shipping invoices as "Bezoar stones," those curious concretions, forming in the bodies of certain vegetable-feeding animals, which were considered medicinally potent in the Middle Ages. Faith in the Bezoar stone and supplies came from the East to Europe, but after the discovery of the Americas it was found that the llama and guanaco also formed the precious object, and trade grew brisk.

Once upon a time Chile shipped the bulk of her copper to India, taking Oriental cottons and other merchandise in exchange; this trade has long been discontinued, although Hindu as well as Japanese retailers are reviving business with Chile. Up to 1887 Chile was still exporting the skins of vicuña, now vanished from her confines, and the beautiful chinchilla, also practically extinct in Chilean uplands.

The trade with the eastern side of the Andes in Yerba Maté received a blow when with Independence it was possible for freer commerce to offer Indian and China teas to the former colonies of Spain; but the peasant classes of Chile are still faithful to the maté and the bombilla, and a decreased but steady import continues.

Foreign Firms in Chile

Commercial conditions upon the West Coast of South America are sharply distinguished from those of the Atlantic and the Caribbean by the establishment of a number of powerful firms doing both import and export businesses, owning and operating factories, and possessing widely extended branches.

Several of these houses are British, their foundation dating back to the early days of Chilean independence

more than a hundred years ago; much of the mercantile enterprise, as well as the milling and nitrate refining industry, is indebted to these companies for capital and inspiration. With European alliances also is a strong North American firm, interested in general business, factory development and nitrate, and running a line of steamers between North and South America, while still more recent newcomers are the important Jugo-Slav firms operating all the way from Punta Arenas to Antofagasta, and rapidly increasing their interests in nitrate and other extractive industries.

The largest of the British firms operates sixty branches or agencies throughout Chile, and while importing machinery, tools and agricultural implements, hardware, sacks, rice, coffee, etc., also buys and ships country produce. Another house deals largely in textiles, and a third is chiefly although not exclusively interested in the nitrate country, where in addition to refining and exporting the *salitre*, the firm is a big supplier of machinery, foodstuffs, and all supplies for the town-camps in the nitrate fields.

These large houses do not secure a monopoly of business; side by side are numbers of smaller local firms of various nationalities: but their existence and system of operation is a salient fact in the foreign trade of Chile. The repute of the majority of these strongly entrenched houses stands high; their representatives are men of character and ability, and the organizations have not only created and built up Chilean commerce in the past, but are of great value today. Their services are never more strikingly proved than in such times of stress as those of 1921, when small and inexperienced firms broke under the storm that the big organizations were able to meet with all the strength of long usage and wide credit.

It is sometimes complained against this array of impregnable commercial castles that their influence tends to render the West Coast a territory offering but a cold welcome to the newcomer in trade. I have heard the establishment of the heavy tax upon commercial travellers in Chile charged against the suggestion of the big houses. But even if there is foundation for these complaints, there is something to be said on the other side — for instance, that the old-established firms, having sown for several generations, are not likely to be enthusiastic when a brand-new reaping hook makes an appearance. Thinking of their long cultivation of the soil, big investment, and big overhead charges, they are apt to regard the débutant travelling salesman as a raider, and are not extraordinary in looking askance at comprehensive plans launched during the last few years for direct selling to consumers by groups of home manufacturers.

As a matter of fact Chile is not singular in levying a heavy tax upon the commercial traveller, and its assessment may be regarded as partly due to the pressing need of Latin America during recent years to discover new sources of revenue. Few American countries have even attempted to face the difficulties of the direct tax, and with their chief source of revenue derived from import and export dues, are affected immediately by every change in the commercial barometer. In times of stress all possible founts are examined and in the course of this search the foreign commercial traveller himself has come to be regarded as amongst the imports. It is true that he is still rather a necessity than an article of luxury, and it is recognition of this fact that may help to account for the frequent evasion of payments of the tax.

Chilean law requires travellers representing foreign firms to buy in each province visited a *patente* (licence)

costing 1000 pesos; with the paper peso at an exchange value of one shilling, this is equal to £50, so that in order to traverse Chilean commercial towns from Valdivia to Coquimbo the traveller would have to spend £400 or £500 on licences. The consequence is that visits are either confined to a strictly limited number of cities — perhaps, to Santiago and Valparaiso only — or an arrangement is made by which the trade representative carries the business card of a local house, and is thus not subject to taxation, or rents an office in Valparaiso, pays the normal trading tax imposed on all businesses, and operates freely from that central point. Chile does not trouble the temporary visitor with the host of small charges and restrictions that exhibit local ingenuity in many parts of South America during the last few years, and which include prohibitions against the entry of a typewriter except under a heavy tax; permits to depart from the police or port captains; demands for new vaccination and other medical certificates; inspection and re-stamping of passports; charges upon samples and catalogues, and, worst trial of all, removal of baggage to customs-houses for leisurely future inspection. In Chile one is as free of this bureaucracy as in England before the war.

From commercial rivalry, whether between different groups of foreigners or between foreigners and the Chileans who have for the last twenty-five years taken so vivacious an interest in trade, Chile in general is bound to benefit. The effect of time tends to take retail business more conspicuously than wholesale or big import and export trade from foreign hands and into Chilean, not only on account of ability but because a house beginning life as an exotic has often become Chilean through the domestic ties of its founders. The children of an enterprising foreigner who marries, as so many

foreigners have done, a Chilean wife, are generally Chilean-born and educated, and cling in later life to the pleasant land of their birth; a rapid naturalization of blood and of capital is one of the outstanding features of Chile's economic history.

Trade-marks

The question of trade-marks in Chile is attended by the same difficulties which merchants offering goods from manufacturing countries encounter in many young lands where national rights in discoveries and inventions present few home problems. Broadly, Chilean law gives rights in a trade-mark to the first person registering the mark; and it is not unusual for a foreign maker or agent, entering the country with some special product for sale, to find that his emblem has been already registered by some enterprising and unscrupulous person, who must be bought out if any business is to be done by the original owner. Litigation has raged about this matter, but the only safeguard consists in speedy registration in Chile — and all other parts of the Americas where no international convention is in force — of the trade-marks of any article which is likely to be sent here for sale.

Chile has had a patent law since 1840, but that in force today was decreed by Barros Luco in 1911; it is modelled upon similar laws in other lands, but there is a time limit of two years within which the patent must be "worked." In practice, however, the patentee as a rule obtains a ten-year extension of the term within which his rights are not liable to forfeit in case no active use is made of them.

The Post Office, Santiago.

Santiago, with the Snow-capped Andes in the Eastern Distance.

Subercaseaux Palace, Santiago.

CHAPTER XI

TRANSPORT SYSTEMS

Railroads. — The Transandine Line. — Sea Transport. — Rivers and Lakes. — Roads.

CHILE possesses 8600 kilometres or 5375 miles of railways, of state and private ownership that, running throughout her main territorial length north and south, and connected with the sea by a number of transverse lines, serve her better than any other South American country is served.

The rule all over the continent is that the seaports are the chief points where population is grouped and that from these ports railways have been driven inland as pioneers opening new country. Many of the regions thus served are immense, as a glance at the map shows; great fans of steel rails spread from Buenos Aires, S. Paulo and Montevideo, for example. But these lines were built to serve, and do almost exclusively serve, the needs of special localities lying inland from a coastal point, and only in a few instances are these regions systematically linked to the rest of the country.

The construction of Chile's great longitudinal services was forced upon her, luckily, by the peculiar topographical form of this part of South America. All the long folded ribbon of the Central Valley is a natural highroad, and the railways follow very ancient trails.

From Tacna, in 18° of south latitude, lines run almost continuously to Puerto Montt at the edge of the Gulf of Reloncaví in 41′ 50″ of south latitude, a distance of

about 1500 miles. From this great main artery of traffic touching all the important producing regions of the Central Valley, branches run west from thirty different points to the Pacific; the length of these connecting links is short, averaging 30 to 50 miles.

To the east a number of small lines extend to serve mining or agricultural regions, and three long arms have been flung across the mountain barrier of the Andes. One of these, the Transandine line, forms the only existing railway system connecting the Atlantic and Pacific Coasts of South America, the distance from Valparaiso to Buenos Aires totalling 1444 kilometres, or 896 miles, the journey taking two days.

The second line climbing the Andes is that extending from Antofagasta to La Paz in Bolivia, 863 kilometres or 518 miles. The third also runs to La Paz, from the former Peruvian port of Arica, a distance of 433 kilometres or 260 miles.

The policy of the Chilean Government as regards railways had its beginning in 1852, when President Manual Montt inaugurated construction of a line to unite Santiago and Valparaiso, a cart road built by Ambrose O'Higgins then serving these two important and growing cities. In a straight line the distance between Santiago and the port does not exceed 55 miles, but the coastal range rises in this region to unusual heights, and in order to negotiate the crest a curve was made northward passing by Limache, Quillota and Llai-Llai, the length totalling 187 kilometres, inclusive of the section now forming a part of the great longitudinal system. The first part of the line completed, between Valparaiso and Viña del Mar, was opened to traffic in 1855; the extension to Limache, in 1856; to Quillota, in 1857; construction of the San Pedro tunnel, together with delays resulting from the revolutionary troubles

of 1859, held back completion of the extension to Calera until 1861; Llai-Llai was reached in 1862, and the whole line opened to traffic through from Valparaiso to Santiago in September, 1863. A new line is now planned to follow a shorter route via Casablanca.

At the same time that this sea-to-capital link was commenced the Government authorised the construction of a main line running south by a private company, the Ferrocarril del Sur, while in the north a number of railway enterprises were also undertaken by individuals or companies, chiefly with the object of serving mineral regions. The majority of these companies were capitalised in London, although the concessions were in some cases obtained by American promoters such as Henry Meiggs, afterwards well known in connection with Peruvian railroad building, and the genial William Wheelwright. Hundreds of young British and American engineers entered Chile at this period of early construction, while native-born Chileans still lacked technical training, and scores of them remained in the country permanently, settling and founding families. It was a tremendous era of building which lacked coherence but nevertheless was intelligent and forceful; every strip of line had its sound *raison d'être*, served its immediate purpose, and not only marked an industrial movement but remains today as a permanent contribution to the transport needs of Chile.

Actually the first railway line to operate in Chile was the Copiapó line running from that celebrated and then flourishing copper mining centre to the little port of Caldera, 55 kilometres distant. Construction was begun in 1850 and the line was opened to traffic in 1852, the Copiapó railway thus achieving its place as the second oldest railroad in South America. First place belongs to the Demarara line in British Guiana.

By the time that the Valparaiso-Santiago railway was completed the southerly trunk line had been pushed as far as San Fernando, with extensions surveyed to Curicó and Talca. Curicó was reached in 1867 and was promptly sold by the private constructors to the Government of Chile, already marking out its continued policy of state ownership of transportation systems. Until about 1870, when both imported and native coal began to come into use, the fuel burnt by the locomotives of the central sections was Chilean wood, a circumstance which was material in helping to destroy the woodland of Central Chile.

To the north, Carrizal had a mule tramway running thirty miles from the copper mines to the sea; it was superseded in 1863 by a steam line. The Coquimbo railway was begun in 1856, afterwards taken into the state system but originally a mining line; as also was the Chañaral strip, linking Pueblo Hundido, another of the early pioneers; the Tongoy railway, begun in 1867, and running to Ovalle; the line connecting Vilos and Illapel, and that joining Huasco and Vallenar.

By the year 1885 the Chilean Government owned 950 kilometres of railway, while private companies owned 1254 kilometres. The result of the War of the Pacific gave a spurt to extension of nitrate railways, several of which had been begun in the great salitre regions, while the developing industry brought public revenues to the Moneda, permitting the acquisition or extension of state lines. Twelve years later the Chilean Government was operating 2000 kilometres of railways, while private owners operated about 2300 kilometres.

In 1910 the Government had extended its lines to Puerto Montt in the south, and ran north to meet the nitrate railways, a gap remaining in the latter section between Cabildo and Pintados, where the lines serving

the Tarapacá fields reached their farthest southern point. An arrangement was reached for completion with two British syndicates. The Government now controls over 4600 kilometres of line, while private owners control about 4000 kilometres.

The state lines provide comfortable and cheap passenger transport, carrying goods also at reasonable rates. Travel is an inexpensive pleasure, the service is punctual, and equipment good. It is doubtful if more exquisite scenery can be enjoyed anywhere in the world at a like cost. But, like many richer and more experienced governments, that of Chile consistently loses money on her national lines. Only during the busy years of 1915, 1916 and 1917, when depleted steamship service sent more traffic to the railways, did the state lines show a profit. Since the Armistice, losses have been increased, 1919 ending with deficits variously computed at 14,000,000 and 40,000,000 pesos.

Previous to 1918 the private lines always earned profits, but disorganisation of the nitrate and copper industries, together with the low rates sustained, caused considerable entries on the wrong side of the ledger during 1918 and 1919.

With two exceptions the Government lines form a homogeneous network extending north and south and flinging out arms to vital points. But there are two isolated lines. One is the strip on the Island of Chiloé, connecting Ancud with Castro, 98 kilometres long; the second is the Arica to La Paz railway, 438 kilometres in length, joining this old Peruvian port to the capital of Bolivia.

This line is of special political interest, besides presenting a fine engineering feat — for it reaches an altitude of 13,000 feet above sea level. Forty kilometres

are on the rack system. The line was built in accord with an agreement made with Bolivia after the War of the Pacific, the same Treaty that deprived Bolivia of her coastal belt promising her a new outlet to the sea as a seal of peace. The Arica-La Paz railway cost £2,900,000, was opened to traffic in 1914, and the section traversing Bolivian soil, 238 kilometres long, is to become the property of Bolivia in 1928.

The private lines represent an investment of 238,000,000 pesos of eighteen pence, or £16,800,000, as against the State's capital expenditure of 394,000,000 pesos, or £29,550,000. The most important group of private lines are those serving the great nitrate pampas, and the largest operators are the Antofagasta and Bolivia Railway Company. The lines of this English system date their inauguration from 1873, extend over 925 kilometres, of which 482 lie within Bolivian territory, and carry traffic from Antofagasta to La Paz at the same time serving a great nitrate area. Branches run to the salitre of Boquete, to Chuquicamata, to Conchi Viejo and the Collahuasi mines, within Chilean confines. Equipment and management upon this line, with its excellent dining and sleeping cars, are of a high order; total capital invested, £8,550,000. In addition to this system, the company has since 1916 operated the northern section of the Government's longitudinal railway, about 800 kilometres long. Next in importance of the private railways is a network connecting the nitrate fields of Tarapacá with the ports of Iquique and Pisagua, owned and operated by the Nitrate Railways Company Ltd. (London). The first concession for building the line was obtained in 1860, the total investment amounts to over £2,000,000, and the company operates 578 miles of line, of 1.43 metres gauge. The services rendered by this well-equipped

line are best realised when the number of nitrate oficinas utilising the railroad are added up and found to total sixty-nine.

The Taltal Railway Company, Ltd., is another British line, operates 298 kilometres of track of 1.06 gauge, and links the salitre pampas of that part of the Atacama desert lying within Antofagasta province with the port of Taltal. The investment totals £1,050,000.

Also British is the railway connecting a large group of nitrate fields with the port of Caleta Coloso, the Cia. del Ferrocarril de Aguas Blancas, with 221 kilometres of track of 1 metre gauge; the network belonging to the Compania de Salitres y Ferrocarril de Junin, operating 89 kilometres of 0.76 gauge track and serving oficinas near the coast of Tarapacá; the lines of the Cia. de Salitres y Ferrocarril de Agua Santa, uniting nitrate works at Agua Santa, Negreiros and Huara with the port of Caleta Buena, 109 kilometres; and the Anglo-Chilean Nitrate and Railway Company, Ltd., linking the nitrate pampas of Toco with the port of Tocopilla, 122 kilometres in length.

Also of British construction, capitalisation and operation is a short line, dating from 1855, connecting the city of Tacna with the port of Arica, 63 kilometres of 1.43 metre gauge track; and formerly British, but sold in 1920 to the Lota Coal-mining Company is the railway connecting the city of Concepción with the ports of Coronel and Lota and with the flourishing coal mine of Curanilahue. The British owners were the Arauco Company, Ltd., operating 103 kilometres of 1.68 metre gauge track. The line from Los Sauces to Lebu, whose construction was suspended during war years, is also a British enterprise.

Chilean capital and enterprise is responsible for several private lines, as the Ferrocarril de Copiapó,

whose first conception was due to Juan Mouat of Valparaiso, in 1845. The original line connected Copiapó with Caldera Port, 81 kilometres, but extensions were afterwards added to Pabellón, and thence, after acquiring a mule-tramway to the Chañarcillo mines, to Chañarcillo, another ramification running north-east towards the Argentine border but terminating at Puquios. The gauge of the line is 1.43 metres, and the length 231 kilometres. Also Chilean is the Ferrocarril de Carrizal y Cerro Blanco, uniting Carrizal Port to the copper mines of Cerro Blanco, due east, with a southerly branch to manganese deposits near Chañar Quemada and Astillas and another to the copper mines of Jarilla, the line terminating at Merceditas. The line with its branches has a gauge of 1.27 metres and a length of 184 kilometres.

The Ferrocarril del Llano de Maipo, running between Santiago and Puente Alto, 22 kilometres, is Chilean; so also is the electric line between Santiago and San Bernardo, 15 kilometres, and a similar link between Concepción and Talcahuano, as well as the short railway connecting Concepción and Penco. A new Chilean railway runs between Quintero Port and Cousiño, while the lines serving coal regions of the south are practically all Chilean today, but their length and direction is subject to change according to need.

The Ferrocarril Transandino por Antuco is the beginning of an ambitious Chilean project to cross the Andean barrier into Argentina at a low-level pass. The line starts from the station of Monte Aguilar on the state longitudinal railway, in the province of Concepción, runs almost due east towards the volcano Antuco and Lake Laja, and has a present extension of about 85 kilometres. It has a metre gauge track, will have a length of 129 kilometres when it reaches the

Argentine frontier, the mountain pass which it is planned to traverse having a height of but 1862 metres above sea level, or not much more than 3000 feet. Within sight of this pass the river Neuquen has its rise, and it has been contemplated to follow its valley south-eastward to connection with the line running from Bahia Blanca.

A Chilean trading and cattle company with head-quarters in Valdivia is constructing a new southerly line, running eastward from the longitudinal station of Collilelfu, about forty miles from Valdivia, to Lake Riñihue: here a line of connecting steamers will carry passengers farther to the east, and a second strip of railway will connect with the lake of Pirihuaico, whose easterly point almost touches the Argentine border. About 40 kilometres of this line is open to traffic.

Far south, running from Punta Arenas to the coal mines of Loreto, is another small Chilean line of nine kilometres.

Of North American construction and operation is a 25 kilometre ore-carrying line between Caleta Cruz Grande and the Tofo iron mines; a narrow-gauge private line of 70 kilometres joining the copper mines of El Teniente (Braden Copper Co.) to Rancagua town; and a link between Pueblo Hundido and the copper beds of Potrerillos. German interests (Gildemeister & Co.) constructed a small line, for the exclusive use of a related copper mining company, from Challocollo to Cerro Gordo, in Tarapacá, with an extension to La Granja, in 1897, 36 miles of narrow-gauge track.

Investment in private lines (most of which are open to the public, but are distinguished from the state-owned railways) is reckoned at a total of 238,000,000 Chilean pesos of eighteen pence, divided amongst British companies, 209,000,000 pesos; Chilean, 24,000,-

000; and North American, 5,000,000. The German investment of two or three millions does not appear in statistics of Chile since 1916. The former German-operated tramways of Santiago and Valparaiso have passed into British hands and are now controlled by S. Pearson & Son, Ltd.

Three new Andes-crossing lines are contemplated in Chile. Two are planned to the north of Santiago, the third to the south. The latter is already in construction as part of the state system, running from Cajón station, just above Temuco, through Cautín province eastwards. The mountain barrier is here below 5000 feet in height, and negotiation of the Andean section, plus extension to the Argentine line running west from Bahia Blanca, presents no difficulties beyond that of finding sufficient capital for construction. Chile's eastward extension will traverse the green fields of the Lonquimay Valley, crossing by the Pass of Maullin Chileno.

To the north, one project indicates a line extending east from Antofagasta through Boquete and Huitiquina on the Argentine frontier, and joining with Argentine systems at Salta; another plans a railway to continue the branch running out from Coquimbo along the Elqui Valley to Algarrobal and Rivadavia. Crossing the Andes by the Tortolas pass, the line would link with the Argentine system of Rioja province. Regarding the two first-named lines, the Argentine and Chilean Governments have agreed upon a close mutual policy, and work upon unified plans is being rapidly advanced.

The Transandine Line

Railway lines crossing the South American continent are sometimes said to be of less pressing importance

since the opening of the Panama Canal rendered the West Coast more readily accessible from the western seaports of Europe and the eastern coasts of both North and South America. It is true that certain overseas commerce is served by the Panama route, exactly as it was encouraged when steam navigation made it possible for seamen to face the Magellanic Strait without misgiving, yet no one with knowledge of the internal needs of South America doubts the necessity for strengthened transcontinental links. Canada, with 8,000,000 inhabitants, built two transcontinental railroads: South America, with 75,000,000 people, has but one direct cross-country line completed.

This single railway from sea to sea — connecting Santiago de Chile with Buenos Aires by a two days' journey of 900 miles — is a remarkable piece of work, owing inspiration and accomplishment to the Anglo-Chilean engineer brothers, Juan and Mateo Clark. It has been open to international traffic as a through line since 1910, its operation stimulating not only the commerce of Western Europe and Chile, but aiding the development of brisk trade between Chile and Argentina. It was a reopening of ancient paths. Before and to a lessened extent during colonial times a score of passes over the Andes were in common use and the interchange of persons and goods continuous. Following Independence and the creation of sharp and sometimes jealous divisions between the republics, the countries were separated as never previously; old transcontinental trails were neglected. This neglect was increased by the interest taken in South America by the rich countries of Europe, the establishment of shipping lines to all the ports of the young communities, and the stream of gold and people directed towards the development of commerce and public services. For

a century each South American state turned its face to the sea, economically and intellectually. The creation of the Transandine railway was the first deliberate conquest of the Andean barrier between eastern and western nations of the continent. A few miles of construction only are needed to connect up Bolivian railways with the northerly Argentine system. Ecuador is planning a link with the Amazonian headwaters to create a route for merchandise similar to that of North Bolivia, with outlet at Pará; but lack of population and production through vast interior regions has acted as a deterrent against transcontinental plans even more than engineering difficulties. These have been surmounted in South America in a number of instances, the mountain-climbing lines of Brazil on the east and of each of the four countries to the west offering famous instances of response to industrial need. But without the sound *raison d'être* of Mendoza's flourishing existence at the eastern foot of the Andes the present Transandine line would have waited longer for its creation.

Juan and Mateo Clark, planning the line, obtained a concession from the Argentine Government in 1872, and from the Chilean in 1874. Money was scarce and engineering problems many, so with a view to lightening the burden the route was divided into four sections, and construction performed by the group of corresponding companies. The longitudinal line built by the Chilean Government already had run a branch from Llai-Llai in an easterly direction towards the mountains, culminating in the station of Los Andes at 2733 feet above sea level — the old Santa Rosa de los Andes. This railway followed the ancient mule road towards Juncal and the Uspallata pass en route for Mendoza and Buenos Aires, and the eventual con-

struction of the Chilean Transandine practically adopted the same course from Los Andes to the Argentine frontier in the heights. But this section, although but 70 kilometres in length, presented the worst difficulties and was the last completed.[1]

Three companies undertook construction of the strip between the Argentine frontier and Buenos Aires, 1373 kilometres long. The mountain section to Mendoza (2481 feet altitude) was built by the Argentine Transandine Company; Mendoza to Villa Mercedes (with a branch running north to San Juan, site of an ancient post-house), by the Argentine Great Western Company; and Villa Mercedes to Buenos Aires by a company subsequently called the Buenos Aires and Pacific Company. Money supplies came from London, where the companies are domiciled.

The Villa Mercedes-Mendoza link of 356 kilometres was completed and opened in 1886; the pampas-crossing section between Villa Mercedes and Buenos Aires, 692 kilometres, in 1888. This was all plain sailing, but serious difficulties were encountered in the mountain sections. Work began on the Argentine side in 1887, and upon the Chilean in 1889; in the latter case the indefatigable Clark brothers gave not only devoted energy but their own funds, suspending operations in 1892, after 27 kilometres were built, when their capital was exhausted. A year later part of the Argentine Transandine section was opened to traffic, but the operation of completed lines on the east had the effect of diverting all traffic from Mendoza to Buenos Aires instead of promoting international commerce as had been contemplated.

[1] On the Chilean side a rack system is employed for 23 kilometres; the maximum grade is 8 per cent. On the Argentine Transandine the rack system is employed for 14 kilometres, with grades nowhere reaching more than 6¼ per cent.

In 1904 a new firm, the Transandine Construction Company, London domiciled and financed, took over the Chilean section from the Clark brothers and their creditors, and finally joined the Argentine Transandine at the frontier station of Las Cuevas in 1910.

The old cart and mule road crossing the Cumbre rose to an altitude of 14,500 feet, and was, during the period of snow-storms, usually due between April and October, shut to all but the hardiest travellers. To obviate this ascent the builders of the Transandine drove a tunnel through the head of the Andean barrier, at an altitude of 10,521 feet above sea level; the tunnel "de la Cumbre" traverses a length of more than 3000 metres, the two transandine lines meeting within its length, at an altitude of 10,515 feet. With greater capital to spend, the Chilean Transandine constructors would have driven the tunnel through the mountains at a level about 3000 feet lower to avoid the storms raging about the higher regions, and ultimately this work will probably be performed: but it entails construction of a tunnel four times the length of that in existence.

Below the tunnel on the Chilean side the company shields the line with strong snow sheds, but here again lack of sufficient capital prevents the additions necessary if the line is to be safeguarded all the year round; at present there is danger of enforced stoppage as soon as the first heavy snows fall, blocking the line with twenty or thirty feet of drift and avalanches. More than once traffic has been suspended for three or four months.

In spite of difficulties, however, the line has proved to be of immense value to international traffic, has shortened the distance between West European ports and Valparaiso by over 2000 miles as compared with the Magellanic route, and 500 miles as compared with

On the Chilean Transandine Railway.

Laguna del Portillo: near the Transandine line.

Santa Rosa de Los Andes: Chilean Terminus of the Transandine Railway.

the Panama journey. With the operation of the Panama Canal the route between New York or Halifax and Valparaiso was shortened so much that it is a saving of time for a traveller wishing to reach Buenos Aires from a North American point on the eastern side to journey via the Canal and the Transandine. Buenos Aires has also been brought into closer touch with the Orient and Australasia, while Chilean towns are in quick communication with the markets of Argentina, Uruguay and Brazil.

Brisker traffic in both passengers and merchandise will be developed when unity in administration is in working order. But this has been long delayed, owing to the troubles connected with construction days. In 1894 the Argentine Transandine, observing with misgiving the remote prospect of completion of the Chilean link, formed an agreement by which the Argentine Great Western operated the section open to traffic, this arrangement being renewed in 1901 and 1905. In 1907, after some skirmishing and the commencement of a competitive line to Mendoza, the Buenos Aires and Pacific Company obtained control of the Argentine Great Western, and at the same time of the agreement controlling the Argentine Transandine, which line it guarantees from losses threatened by blocking of traffic through snow. Thus for many years the Buenos Aires and Pacific held the reins of all rail operations between the capital of the Argentine and the frontier of Chile, and was frequently charged with so arranging freight prices as to send all Mendoza traffic eastwards, while discouraging commercial interchange between Chilean markets and the prosperous Mendoza vicinity. The Chilean Transandine constantly pressed for a revision of management, proposing that the Argentine Transandine should be separated from the Buenos

Aires and Pacific and united with the Chilean mountain-climbing link, so that a single administration should operate the line between Los Andes and Mendoza, the terms of the lease held by the Buenos Aires & Pacific Line allowing of cancellation at twelve months' notice.

Chilean and Argentine public opinion agreed upon the matter, the help of the two Governments was enlisted, special meetings held under the auspices of the Sub-Committee on Railway Transport of the Pan-American Conference held in Buenos Aires in 1916, an International Commission appointed to arbitrate upon goods rates between the two countries, in 1917, and a draft proposition approved in early 1918 between the diplomatic representatives of Argentina and Chile in London, acting in consultation with the directorates of the two Transandine companies. Chile agreed in August of 1918, and, in amicable agreement, the Government of Argentina, in December, 1919, accepted the proposal in principle; arrangements were made by which the new contracts with the Transandine lines should be simultaneously discussed in the Congresses of both countries. In early 1922 agreements were complete, details of unification of the railways was decided, provision made for new financing of the improved system, and tentative arrangements outlined with a view to new and liberal tariffs between the two countries, tending to encourage traffic not only via Mendoza, but also between North Chile and the Salta region, as well as between South Chile and Eastern Patagonia when the projected new Transandine links are completed.

Sea Transport

As regards sea transport Chile is in an enviable situation with her immense coastline giving speedy access

to all inhabited parts of her territory. It is true that with a few exceptions, of which Talcahuano is the most notable, Chilean ports are little more than open roadsteads, exposed both to the south-westerly gales and to the dreaded "northers"; but modern engineering is doing much to solve the problem of safe havens where visiting vessels may anchor in safety. The same difficulty applies to almost the whole of the South American West Coast, and for centuries sailing vessels feared the region; during Spanish colonial times it was so common a thing for a ship to spend from six to twelve months on the passage between Callao and South Chile that when Captain Juan Fernández, running out south-west for a thousand miles, and afterwards turning almost due east for Chilean ports, managed to avoid the cruel coastal gales and made the passage in thirty days, he was haled before the Inquisition as a wizard. The Inquisitors, however, after careful examination of the captain's papers, set him free, applauding his sagacity. From that day the group of islands named to commemorate the navigator's skill became the beacon for vessels sailing to Valparaiso from the North, although ships returning to Peru still hugged the coast.

It is not uncommon for sailing vessels to be wrecked off the difficult southerly coast, with its innumerable indentations and furious storms, but the worst year of the present century was 1911, when 37 steamers as well as, by a strange coincidence, an exactly equal number of sailing ships, were cast away off Chile. That was a year of exceptional storms, but out of 32 years between 1887 and 1919, only seven passed without a record of wrecks; it is to the credit of the excellent surveying and charting work of the Hydrographic Department of the Chilean Navy that the path of the

navigator has been rendered plainer, while the Chilean Government has in hand a series of plans for the better protection of ports — lacking only the financial sinews of war against wind and tide.

Of Chile's fifty-four ports of major and minor importance, perhaps thirty are visited by international shipping. But of these only about fifteen display brisk commerce. Arica, visited by 400 foreign ships annually and over 300 Chilean vessels, connects directly with Bolivia; Pisagua, Junin, Caleta Buena, Iquique, Tocopilla, Mejillones and its younger sister Antofagasta, Coloso and Taltal, are nitrate ports, bustling when nitrate markets prosper and almost idle during the most depressed period of 1921. The copper ports of Chañaral, Caldera and Carrizal Bajo have suffered more than Coquimbo, with fruit and other farm exports to add to her diminished list of minerals. Valparaiso, chief port of Chile, receives about one thousand national and three hundred foreign ships yearly, one-third of the whole exports entering here, although Antofagasta and Iquique are the big exporters. In normal years, Valparaiso receives 1,400,000 tons of cargo, of which nearly half is coal. Farther south, Talcahuano, the chief naval base and the port for flourishing Concepción, receives about 400 vessels annually; Coronel, exporting and bunkering Chilean coal, receives about 700; Corral, the port for Valdivia, is visited by some 200 ships yearly; and Punta Arenas in the Strait of Magellan, does business with twelve hundred Chilean and about one hundred and thirty foreign vessels each year.

These ports will probably continue to be the great outlets for Chile's most thriving regions, but they are insufficient to serve the needs of a long list of growing districts, and in spite of much good planning are still

Coquimbo, the "Capital of North Chile."
Ancud, the Port of Chiloé Island.
Zapallar, a beautiful Chilean Watering Place.

inadequately equipped for the increasing work required. A special Government Commission, lately considering the question of more sea gateways, has decided that forty or so of the points along the Chilean coast should be improved for the reception of international shipping.

The Commission's recommendations necessitate the expenditure of at least six million pounds sterling, or let us say the whole of the taxes upon nitrate exports during one prosperous year. The sum will in all probability be raised, according to need, year by year, by means of exterior loans.

According to the projects, Valparaiso will be allotted a further million and a half pounds; Valdivia, Lebu, Talcahuano and Constitución, about one million each; Puerto Montt, a preliminary £150,000; Tomé (at the north of Concepción Bay) and Pichilemu, £40,000 each; with smaller sums for Iquique and Puerto Saavedra (Imperial Bajo).

Valparaiso port works have been since 1912 in the hands of a British engineering firm, and have given a good deal of trouble, storms more than once undoing part of the construction work; in the early months of 1922 there were completed two quays totalling 840 metres in length, a breakwater of 288 metres, and a coal wharf 200 metres long by 30 metres wide; work upon the mooring jetty, the extension of the old Fiscal Mole (dating from 1883, and the only means for transferring passengers and cargo until the new quays were constructed), the Prat Quay, warehouses and railway is also well advanced, in spite of long delays caused by the European War. There is plenty of water — in fact, too much for facile construction of jetties or break-waters, the bottom shelving rapidly from 39 feet at the mooring jetty, and offering, less than 200 feet

from shore, nothing but mud as foundation. In consequence, the outer section of the breakwater cost £560 per linear foot to build. Since 1906 Valparaiso has suffered from no serious earthquake, but slight shocks are not infrequent and must be taken into consideration in the case of construction in the sea as well as upon the land. Rise and fall of the tide at Valparaiso does not exceed three feet.

The Nitrate Ports have earned more money than any other points of outflow for Chilean products, but safe, adequate modern havens for shipping are not to be created in a day or even in a decade; and the same difficulties of the open roadstead and prevailing winds have delayed the completion of adequate facilities even at that busy commercial stronghold, Antofagasta. Comprehensive plans are, however, in course of development, and work has only been delayed by the depression of 1921.

Port improvements at Talcahuano are being carried out by a French company, and the main work is unlikely to be completed for a few years, although it has been attacked. Talcahuano lies within the deeply indented Bay of Concepción, the best naturally-protected haven upon the West Coast, and is further shielded from the effects of northerly winds by the pretty island of Quiriquina, once a rendezvous for pirates, and during the War the place of internment for several hundred Germans, including sailors from the *Dresden*. Talcahuano possesses a floating dock and equipment as the first naval base of Chile, and when the present plans have been developed this port will be one of the best in South America.

The creation of a secure port at the mouth of the fine river Imperial, Puerto Saavedra, will be comparatively easy when the projected cut is made from Budi

Bay through a sandy bank into the river, safe from all storms. From this point the stream is to be dredged for 20 miles up to the town of Carahue, where a branch railway connects with Temuco and the Longitudinal system. Another important dredging work is projected along the stream of the Valdivia from Corral port. This haven of old foundation, nestling under its cliffs, has been for centuries of necessity the stopping-place for vessels with cargo and passengers for Valdivia City, twelve miles inland, all traffic being transshipped up-river by small steamers, barges, etc. By the new plans a channel will be deepened to permit the passage of ocean-going steamers to the beautifully placed riverine city, whence rail connection opens the most fertile agricultural country, immense forestal zones and a large coal-mining region.

At pretty Constitución, where the dangerous bar is so much dreaded that its condition is always signalled to vessels before they venture to approach, plans include the dredging of a channel and construction of breakwaters to prevent silting-up.

Puerto Montt, at the end of the Longitudinal, and lying within the Gulf of Reloncaví, is a recent creation whose equipment as a port receiving international vessels is still only on paper; this Llanquihue region, with its lumber and sheep industries, is fast developing, and will invite a great deal of tourist traffic when its transport facilities are equal to its glorious scenery. Port construction problems are chiefly due to the 25-foot rise and fall of the tide. At Punta Arenas, another new port of remarkably rapid and vigorous growth, vessels are still obliged to lie out in the Strait while cargo and passengers are transferred by lighters and small boats, but the steady prosperity of this zone as well as its position as a port of call for international

steamers render imperative the creation of modern port facilities.

Rivers and Lakes

Chile has one hundred and twenty rivers, but can count no more than five hundred miles as navigable. This navigability is again limited to small vessels only, to which another five hundred miles of lake waterways are also open; motor boats and canoes are able to traverse another four hundred or so of rivers, but these are frequently broken by cascades and falls.

In pre-Spanish times the lakes and rivers of Chile leading towards the Andes undoubtedly served as channels for Indian traffic; the Rio Blanco, Juncal and Aconcagua led towards the mountains into what is today Argentine territory from the populous Central region of Chile, while the lower passes were crossed to the south by way of many river valleys and by such lakes as Llanquihue and Todos los Santos, a short strip only intervening between the latter beautiful water and the lovely Nahuel Huapi in East Patagonia. During colonial times, with the depopulation of the wilder country and the concentration of towns upon the seaboard, this traffic diminished and commercial exchange was limited to ocean transport, with, however, an increasing intercourse with Argentina when the then Chilean provinces of Mendoza, San Luis and San Juan developed trade with the new colonies of Buenos Aires. But below Chiloé the territory remained unknown, and it has only been within recent years that the southern lakes have been visited and surveyed.

As to the rivers during colonial times, if they were not treated with equal neglect, their capricious ways were permitted to absolve them from any great useful-

Taltal, a Nitrate Port of North Chile.

Puerto Corral, the Port of Valdivia, South Chile.

ness, and it has only been within the last twenty years that serious studies have been made with a view to restraining, preserving and freeing the torrential streams characteristic of the short, steep slope of Chile. All Chilean rivers are snow-fed, and are extraordinarily and violently augmented when the Andean snows melt; the northern floods are more uncontrolled than those of the south, tearing down from greater heights through open country where nothing but, eventually, heat and sand offer a check. Many disappear in the desert while still far away from the sea. The southerly rivers, flowing from lesser heights and passing through long forestal areas, are more constant in volume. It is only below Lebu, in 38 degrees of south latitude, that any Chilean river becomes even nominally "navigable," with the sole exception of a dozen miles of the Rapel.

Nevertheless, the longest Chilean river is in the north, flowing across Chile's widest province, Antofagasta; this is the Loa, fertilising oases in the desert and sheltering little groups of people today just as it offered a livelihood to indigenous folk in pre-Spanish days. The Loa, sometimes called the Calama, is three hundred miles long, but for half the year is not more than a thread at the bottom of a wide gully. Its nearest northerly rival is the Copiapó, about 170 miles, watering fruitful valleys like the capricious but equally invaluable streams the Huasco, Elqui, Hurtado, Limari and Petorca. A succession of rivers in the Central Region are untamed floods in the rainy season — the Aconcagua, Juncal, Blanco, Volcán, Colorado, Maipo, and Mapocho, Cachapoal and Rapel — none more than 125 miles long. Three or four of these rivers will be harnessed in the near future to yield hydroelectric force. Below to the southward, the Mata-

quito, the Maule of ancient fame, the Itata and the exquisite Bio-Bio are all outside the navigable list, and the latter is distinguished by its exceptional length of about 200 miles as well as its beauty.

First among navigable rivers as one goes from north to south is the fine Imperial, with a watershed of about five thousand square miles, and a length of one hundred miles; it has a magnificent and constant flow, but only fifteen miles are navigable. The Toltén owns six navigable miles; the Valdivia, 125 for small boats and about 25 for larger craft; the Bueno is in a different category, for, with a length of not much more than one hundred miles, it has about 50 miles of navigable channel. The Bueno, in fact, is the outflow of two lovely lakes, Ranco and Maihue, and discharges 600 cubic metres of water per second, a flow second to none among Chilean rivers.

Still farther southward, the Maullín has thirty navigable miles; the Palena about twenty; the Aysen, no more than twelve. And next comes that fine and little-known river the Baker, whose length is said to be equal to that of the Loa in the far north, about two hundred and eighty miles, of which nearly fifty are navigable. Outside that list are the Bravo, Pascua and Serrano, except for the canoes of the south-dwelling Indians.

Of Chilean lakes, Llanquihue is the largest, with a superficial area of 1400 square miles; its great depth, averaging 360 feet near the shore, suggests that this is the crater of an old volcano. Skirted by the south end of the Longitudinal railway, Llanquihue counts several ports, with Varas as the oldest-established and the largest. This lake, with its near companion, Todos los Santos, is traversed by Chilean steamers; and there is

regular traffic upon Riñihue and Ranco. The former lake is reached by rail to Los Lagos station, horses taking travellers thence to the edge of Riñihue, about 25 miles; a wild but glorious stretch of typical Chilean woodland, clothing the sides of a lovely valley, lies between Riñihue and Ranco, with its brilliant turquoise blue waters, and abrupt sides covered with ferns, foxgloves, fuchsias and a close growth of trees of bright green foliage. Small steamers cross the lake to Llifen, where there are famous curative sulphur baths.

From Puerto Montt southward is a long series of fiords, islands, indentations and inland channels whose intricacy and extent are unequalled even by the famous fiords of Norway. For natural beauty the Norwegian complex cannot compare with that of Chile, for no woodland exists in Europe that rivals the pathless, luxuriant, flower-hung forests of Chiloé Island, the Andean spurs of Western Patagonia, the broken archipelago of Chonos, and the noble mountains of the Strait of Magellan. Rich ferns and flowering shrubs, wild bamboo and pines and beeches, reach to the water's edge Through the thousand miles of this complicated chain of inlets and islands between Puerto Montt and Punta Arenas runs an almost continuous channel, continuation of the long depression which creates the deep fold of the great Chilean central valley. Steamers seeking sheltered waters from the Strait of Magellan northward need not emerge into the open Pacific, but turn north by Smyth Channel and run inside the barrier formed by Hanover and Wellington Islands. But at the Gulf of Peñas vessels are forced out to the turbulent ocean, a thin strip of land barring the way to the calmer waters of the Moraleda Canal. Chilean engineers have long projected a cut through this Ofqui bar, joining the mainland to Taitao penin-

sula; for it is only 7000 feet wide; no doubt this necessary help to navigation will be given before long. With this opening effected, small vessels will be able to pass from Puerto Montt to Punta Arenas and Tierra del Fuego by a sheltered waterway, passing great forests, majestic glaciers, frowning snow-capped mountains, stark headlands and a thousand inlets and islands, a long panorama of splendid beauty.

Vessels of all nations visit Chile, Australasia and Japan sending regular lines to compete with the shipping of Europe, North America and Chile's sister South American republics, the total tonnage of visiting ships amounting on an average to over twelve million, of which less than five hundred thousand tons represent sailing vessels. Sea transport on the Chilean coast has undergone an immense transformation since Cochrane brought the first steamer ever seen upon the West Coast, the little *Rising Star*, in 1818. Traffic from North America and Europe comes today in a considerable proportion through the Panama Canal, but the next few years will probably witness a development of tourist traffic through the Magellanic waterway and to such beautiful Chilean islands as Juan Fernández, with its romantic history and wild beauty — undiminished by the local lobster "factory" supplying the tables of Valparaiso and Santiago.

Chile herself performs a fair share of maritime service. About one hundred large and small steamers fly the Chilean flag, with about 35 sailing vessels chiefly engaged in fishing and the transport of coal and lumber, the total representing some 75,000 tons. Over 40 per cent of "maritime movement" of Chilean ports is recorded by Chilean vessels, and strong support of national traffic was afforded in early 1922 by the passage

of a new law restricting coastwise trade to ships registered in Chile.

The largest and most important of Chilean steamship companies is the Compañia Sud Americana de Vapores, Government-supported, with head-offices in Valparaiso, operating a fine and excellently-equipped fleet of ten vessels serving Chilean and Peruvian ports, and, since the War, extending its international service through the Panama Canal to New York and European ports. Two new vessels of 7000 tons each were added in 1922 to the company's fleet: the *Aconcagua* and her sister ship were built at Greenock, and bring the Sud Americana's first-class passenger service to a high standard.

Roads

Chilean highways, placed though they are in scenery so lovely that the traveller's eyes are directed to mountains and tall trees rather than to the morass at his feet, need the improvement projected by the Road Law of 1920, arranging for special taxes to be devoted to the construction and upkeep of first-class country roads.

Reasons for the long neglect of this means of transport include the fact that farmers and countryfolk in Chile commonly ride horseback — this is a land of good horsemen and well-trained animals — and the condition of the surface if not a matter of indifference is of less concern than if vehicles were more common. Next, country produce has been in the past, and in many regions is yet, brought from the farms by heavy ox-carts, pulled by teams for whose convenience, again, a smooth surface is not considered a necessity. The third reason, which perhaps should have foremost place, is the nature of a great part of the Chilean soil.

As soon as one enters the Central Valley of Chile, one recognises a characteristic of the Pacific Coast, the fertile and extremely fine soil, as light as face-powder, with its slightly pungent scent. Much of this soil is volcanic ash, with a mixture of vegetable detritus; it is extraordinarily fertile, with almost every virtue in the eyes of the farmer, and undoubtedly this genial soil produces the best food in the world. But it is difficult to reduce fine dust to the consistency of a road with a surface hard enough to resist the disintegrating effects of an eight-months' drought, followed by tremendous and violent rains.

Between the double row of blackberry hedges, backed by lines of poplars, a typical road of Central Chile is a deep trough of shifting, floating dust in the dry season, and a swamp after the rains set in. Once upon a day in May the writer with a party of friends tried to reach Los Andes from Santiago in a motor-car: the Chilean chauffeur and the car both did their excellent best, but a mile or two outside the capital the highway became a sea of mud, and we finally gave it up when the car skidded upon the top of the Chacabuco Pass. During the fifty or sixty miles traversed before we reached a railway station, the only strip of really hard foundation for the wheels was encountered when we ran in the gravelly bed of a shallow stream.

This test, however, was not quite fair to Chilean roads; the season and the route were not chosen with discretion. For even in Central Chile there are well-made, wide roads, a few hundred miles in each province, over which motors may pass. The coming of the automobile renders the creation of better highways an urgent necessity, in fact, the motor lorry promising a means for getting farm produce to market that is badly needed in the developing districts.

Antofagasta, with its hard-surfaced nitrate fields, owns about six hundred miles of first-class roads; a record equalled only by the big Territory of Magellanes in the far south, where the sheep-farmers of the newly developed estates have made roads across Western Patagonia. In each of these two regions the climate, although in the North almost unbrokenly dry and in the South almost unbrokenly humid, is equable, lacking the sharp and destructive changes of the Central region. It must be owned, however, that the proportion of roads to area in great southern territory is one mile in length to each fifty square miles of land.

Altogether, Chile is officially stated to have between six and seven thousand miles of highway in first-class condition, with Coquimbo, Atacama, Aconcagua, Santiago and Tarapacá following the two provinces named above in length of highways in good condition. The new law aims at putting another six thousand miles of road into the same category within the next few years, out of the total of all classes reaching a mileage of nearly twenty thousand.

CHAPTER XII

FINANCE

Conversion Fund. — Currency. — Debts. — Public Revenues.

When the war in Europe broke out Chile was on the point of establishing a Conversion Office upon lines similar to those followed by Argentina and Brazil. The object was fixation of the exchange value of paper currency by the creation of strong gold reserves, and under normal circumstances Chile's office would have begun its work in 1915. It has not been possible, up to the end of 1922, to open the "Caja de Conversión," although funds are maintained on deposit with this purpose in view in Chile, England and, upon a much smaller scale, in the United States. Funds amounting to over 30,000,000 pesos of eighteen pence were also lying in Germany when war broke out, but these were, by special arrangements with the Allies, withdrawn during war years.

The total amount in the Conversion Fund in 1914 was over 108,000,000 pesos of eighteen pence. Of this less than 4,000,000 was held in Chile, and more than 74,000,000 in the Bank of England, besides the deposit in Germany. The reserve was increased during the following year, standing at 111,000,000 pesos at the end of 1915, or about £8,300,000, but was reduced to 88,000,000 in the following year when the National Congress authorised the utilisation of £2,000,000. This money was drawn upon to pay off Treasury Bills

issued in conformity with the decree of January, 1914, for the purchase of vessels for the Chilean Navy and the construction of port works, but has been gradually replaced until in 1919 the total Fund amounted to over 114,000,000 pesos, of which 67,000,000 were banked in Chile and the remainder in England. At the beginning of 1921 Chile possessed £2,300,000 on deposit in the Bank of England, or nearly 31,000,000 pesos of eighteen pence; and to the credit of the Conversion Fund in the Casa de Moneda in Santiago had bar gold, $400,000 United States gold money, £78,845 of English money, and other specie, amounting in all to nearly 84,000,000 of pesos.

The withdrawal of funds from the Conversion reserves for special purposes was not unprecedented. Three years after the inauguration of the Fund in 1899 (when it was hoped to begin conversion operations in ten years' time) 20,000,000 pesos were used for military expenditure, this sum being practically replaced in 1904 by proceeds of the sale of certain old cruisers.

Gallant efforts made to bring up the Fund to a point justifying the opening of the Conversion Office have been rendered abortive by the hard times of late 1920 continued throughout 1921, but the intention of Chile's financial advisers is maintained and appears only to await the accumulation of sufficient gold.

At the same time the fact that credit and not gold is the true basis of economic prosperity has been forcibly impressed upon South America since 1914. Countries possessing big reserves of gold have been observed to suffer from depreciation of their paper currency, and, what is worse than depreciation, from constant fluctuation in every economic breeze, despite all the efforts of experienced financial experts; and on the other hand

countries which were able to trade advantageously during the war and thus to pile up immense stocks of the precious metal have been seen to experience a demoralising paralysis of their markets — to be choked with their own gold.

The fact that those countries whose fiduciary issues have sunk to an apparently ruinous level are on that very account able to export their merchandise with profit, taking payments in comparatively valuable currencies and paying their way at home in depreciated paper, is illuminated by the lesson of the territories with currency maintained at a high exchange rate by gold backing, which are unable to find buyers of their products because no outsider can afford to pay the exaggerated rates of exchange. However, exporters are not the only persons to be considered, and the general uncertainty of commerce, together with the natural timidity of foreign capital when invited to lands with persistently variable currencies, will undoubtedly act as an incentive towards establishment of the Conversion Office in Chile.

Currency

Exchange values of Chilean currency, as well as several other forms of financial statistics, are officially given in sterling, the use of English monetary terms resulting from the establishment of financial and commercial relations with the United Kingdom in the earliest days of Independence, and from the fact that Chile's first exterior loan was obtained from London. The "gold peso" is fixed in exchange value at eighteen pence, while the paper peso reflects economic conditions from day to day.

Since 1871 the average value of the Chilean peso in

comparison with sterling has fluctuated from just over forty-six pence in 1872 to seven pence in the worst days of 1915 and a drop to nearly sixpence in the slump of 1921–2. For the last fifty years the exchange value has tended to decrease, due chiefly to repeated issues of the paper money which replaced the gold and silver coinage of the Spanish colonial régime, when a peso was worth (1800) the equivalent of four English shillings. The creation of paper money was, however, unavoidable in the circumstances, and so long as a country possesses a sufficient quantity of some recognised form of currency, the material of which it is composed is not a matter of local importance, although exchange values may be grievously affected.

All the gold minted into Chilean money has disappeared from circulation, the finely designed little coins being retained only as curios or mementos since 1875, when severe depreciation of silver values rendered gold higher priced as bullion than as currency. The gold peso is today no more than a financial term. Officially, gold coin has an existence, as the condor, of 20 pesos; the doblón, of 10; and the escudo, of 5, but the currency actually in use is paper, well printed, in denominations from one peso upwards, with silver coins of 1 peso, 20, 10 and 5 centavos, and nickel coins of 20, 10 and 5 centavos. From more than one country of the Americas, silver has disappeared entirely when the depreciation of paper has borne down the purchasing power of the peso or other unit to a point below the market price of the metal, but Chile has so far escaped this denudation in difficult times. At the beginning of the present century the value of the Chilean peso stood at 15 to 16 pence until 1906, when the tragic effects of the earthquake that temporarily destroyed Valparaiso reduced credit.

Between 1907 and 1914 it fluctuated about ten pence, went down to an average of eight pence during 1915, rose to nine pence in 1916 when demands for nitrate increased, to about thirteen pence in 1917 and nearly fifteen pence as the average in 1918; in June of 1918 the peso soared to an exchange value of over seventeen pence, but dropped quickly when the Central Powers signed the Armistice. During 1919 the average remained at about eleven pence, rose to over fifteen pence during the early part of 1920, and subsequently experienced the falls that disturbed the Chilean market in 1921, when the peso touched an exchange value of between six and seven pence.

Despite, or perhaps on account of, the wealth of Chile in copper ores, no coins made of this metal are actually in use, although they make an appearance in official records. The reason for this abstention is found in popular prejudice against a commonly known metal. During the sixteenth century an attempt was made to introduce copper coinage, a large quantity of the metal was minted in Santiago, and the objections of the peasantry were so strong that more than a million piastres' worth of the coins were buried or thrown into the rivers in contempt.

Employés in most of the nitrate fields receive at least a proportion of their wages in special token-money, distributed by various companies with the chief object of circumventing the underground liquor traffic. These large discs, specially tinted, and stamped with the name of the issuing oficina, pass as currency in camp stores and upon the contiguous railroads, but are without more than curio values outside the nitrate areas. Such tokens help to relieve the need for quantities of small money, for Chile, like every other land with a paper currency making conscientious efforts to reduce

inflation, is perennially short of change in industrial regions.

Chile has in circulation about 4,000,000 pesos in silver coinage, and a Government note issue of 150,000,000 pesos, which on the basis of eighteen pence to the gold peso is covered to the extent of 75 per cent by the Conversion Fund; at twelve pence, the issue is fully covered. But there is other paper outstanding — treasury "vales," to the amount issued to banks and nitrate producers, totalling at the beginning of 1921 about 107,000,000 pesos, as well as 45,000,000 pesos in round numbers, issued against the gold guarantee. The total paper currency of Chile is therefore over 300,000,000 pesos, or 75 pesos to each inhabitant, with one peso of silver and with a quantity of nickel: let us say, about four pounds sterling, or $20 U. S. currency.

No one is more acutely aware of the dangers of inflation than Chileans, a people with a marked aptitude for finance. That fine journalist and courageous editor, Carlos Silva Vildósola of the *Mercurio*, has repeatedly drawn public attention to important aspects of the monetary situation, and has declared that Chile is "desperately ill of the disease of paper money"; a comprehensive study of fiduciary issues has also been made by Dr. Guillermo Subercaseaux, a Chilean economic expert, and one of the planks of the Alessandri platform was a promise to proceed with the fixation of exchange, "so that we can know what we really possess, and how much we can buy tomorrow with the money we earned yesterday."

Debts

Chile's public debt was augmented in early 1921 when $24,000,000 United States currency was borrowed in New York, but prior to this loan the exterior obligations of the country had not been heavy in comparison with its vigorous economic growth; later in the year, another $20,000,000 (U. S.) was borrowed in New York, and in the first weeks of 1922 the financial markets of London readily took up a Chilean loan of £1,657,000.

The first Chilean loan was made in 1822, after Independence, by the Supreme Director, Don Bernardo O'Higgins, through his representative in London, Don Antonio de Yrisarri. One million pounds sterling was obtained through the medium of Hullett Bros. & Co., the loan bearing interest at six per cent; a Sinking Fund of £20,000 the first year, and £10,000 in succeeding years was arranged for, any bonds remaining unredeemed in thirty years to be paid off at par. The security agreed upon was a mortgage upon all revenues of the State, estimated at 4,000,000 pesos or £800,000 annually; also specially pledged were the net revenues from the Mint and from the Diezmos or Land Tax, expected to yield 250,000 pesos annually.

Of this premier loan Peru had a share amounting to three-tenths of the total, or 1,500,000 pesos.

Successive borrowings brought Chile's exterior debt to £1,500,000 in round numbers by 1850, and £5,500,000 by 1870. Between 1876 and 1893, when the war with Peru and Bolivia had been followed by the revolution against Balmaceda, these obligations rose to nearly £12,000,000 sterling. In 1901 the account had mounted to £17,000,000, and to £23,000,000 in 1909.

Two years later external loans stood at £35,000,000,

but were reduced to about £34,000,000 in 1913; by the middle of 1921, according to the Official Message of President Alessandri, this debt had been brought down to about £28,000,000. The detailed history of Chilé's financial years since 1884 shows new loans, although as a rule of extremely moderate sums, occurring almost annually with the exception of a gap of eight years between 1896 and 1905, when not a penny was borrowed; nor was any fresh exterior debt incurred between 1912 and 1921. Most of the Chilean loans bore the modest interest of 4½ per cent.

In 1919 Chile began to negotiate for a new loan, to cover the needs of the State railways; there was a deficit of 40,000,000 pesos upon the operation of these lines in 1918, and in addition to another large deficit, expected in 1919, money was wanted for supplies and equipment for new work upon the lines, and especially for construction on the southern part of the "Red Central." The law passed by the National Congress authorising the loan also permitted the State railroads to raise tariffs by 20 per cent. Eventually, in February, 1921, the first New York loan was made through the agency of the Guaranty Trust for $24,000,000 United States currency; it bears interest at 8 per cent, and was issued at 99, a considerable proportion of the sum raised being spent by arrangement in the United States.

Public Revenues

Public revenues in Chile are large in proportion to the population, the great bulk of the national income coming from import and export dues and, since the acquisition of Antofagasta and Tarapacá, especially from the nitrate industry, in the form of exportation taxes, and leases of deposits, as well as less directly

from the entry of immense quantities of machinery, stores and personnel. In considering the statistics of Chilean revenues, it must be remembered that taxes are partly paid in "paper" and partly in "gold"; no gold coin, nor, necessarily, gold-backed paper actually passes, but what happens is that a proportion of the dues are paid in paper of a fluctuating exchange value, while the remainder is paid at the fixed exchange rate of eighteen pence to the peso.

Since the Chilean Government's excellent statistical departments figure out the totals reduced all together in pesos of eighteen pence, however, or in pounds sterling, the student of Chilean economics is considerably aided; but in surveying past years one is confronted with the fact that between 1885 and 1897 the peso was reckoned as being worth thirty-eight pence. For the reason, therefore, that comparisons with external currencies would frequently be misleading, it is preferable to retain the majority of revenue and trade figures in Chilean denominations only.

In 1850 Chile's national income was still below 5,000,000 pesos yearly: there was almost invariably a small balance over expenditure in these early years, and in 1865 this excess rose to the respectable figure of 6,000,000 pesos. It was not until 1868, when revenues had grown to 13,000,000 pesos, that a deficit so large as a million pesos was recorded, and this was the fourth occasion only, in 65 years, that expenses had exceeded income.

In the stormy period of the 'seventies, when expenditure on public services was heavy, and, also, railroad building was developed, deficits were common; but by 1880 receipts had risen to over 40,000,000 pesos, and a balance of nearly 13,000,000 over expenditures was left in the treasury.

In 1891 the public revenues of Chile for the first time reached — and exceeded by 5,000,000 pesos — the hundred million mark. In 1895 receipts reached 127,000,000 pesos, with 93,000,000 expenditure, in round numbers; next year, with an income of nearly 163,000,000 pesos, there was a surplus of 47,000,000, an agreeable record exceeded in 1901 when, with revenues of nearly 186,000,000, the balance left in public coffers amounted to more than 50,000,000 pesos. Both receipts and surplus rose in the next year, and in 1903 official statistics showed the remarkable figures of 210,000,000 income, with 91,000,000 on the right side of the ledger after expenses were paid. A slight drop was experienced in 1904, but in 1905 receipts went up to nearly 257,000,000 pesos, rising to 373,000,000 in 1907 and 458,000,000 in 1908. In 1911 a tremendous jump in public income was made, to 796,000,000 pesos: in this year the surplus rose to nearly 457,000,000 pesos. In the three following years there was a falling off from this satisfactory record, but the balance remaining in the treasury was always substantial, and until Chile was adversely affected by the international upheavals following the European War her treasury was in a condition that many wealthier nations might envy. But in 1919 the Government was obliged to record a deficit of over 60,000,000 paper, and in 1920 estimated a deficit of 89,000,000 paper pesos. The result of these unprecedented difficulties is to bring about a somewhat hasty series of plans for changing the tax system, with a view to obtaining larger revenues, and while heavy dues were placed upon the importation of luxuries, remodelling of the inheritance and land laws, and of the imposts upon industry and commerce was outlined. The fall of nitrate prices, and paralysation of the market, emphasised the fact that this industry is taxed to

a disproportionate degree, while many other forms of activity are exempt. In 1915, for example, out of 134,000,000 paper pesos received in the customs houses, 85,000,000 were paid for nitrate exports and 1,000,000 for its by-product iodine, while of the gold receipts, amounting to 30,000,000 pesos, 29,000,000 were paid for the same output from the salitre fields.

CHAPTER XIII

CHILE'S NAVAL POSITION

Chile and the World War. — Strength of the Chilean Navy. — The Army.

THE geographical situation of Chile, giving her a strip of coast twenty-eight hundred miles long, renders her acutely interested in the future of the Pacific. Command of the Strait of Magellan and the possession of an excellent fleet are guarantees of her ability to protect this interest.

In the wide affairs of this ocean, destined apparently to be the scene for the next trials of political if not of physical strength, the nations of the South American west coast have as yet had no voice, for while it is accepted as a matter of course that certain European countries, the United States and Canada, as well as Japan, Australia and New Zealand, should insist upon having their views heard, neither Mexico nor the countries of Central and South America are generally regarded as parties to the questions involved. With the development of national consciousness and the creation of well-equipped navies, a number of these countries will figure as coadjutors of increasing importance, and in the forefront of them Chile will, I am convinced, be found, ready and able to assume her share in the working out of a common problem.

Chile was physically affected by the great war. Not only was Easter Island used as a naval base by the German fleet, but her ports were used as refuges or supply

stations by the ships of several belligerents. German shipping lay in Chilean ports, many German sailors were interned during the war period in Chile, and although her position was a passive one it cannot be doubted that the deep interest with which she watched events in the Pacific and the Magellanic archipelagos was much more than passive. So far as the Allies were concerned, their cause would have been little, if at all, served by the entry of Chile into the conflict against the Central Powers; it was Chile herself, with a possible post-war claim upon some of the steamers of the Kosmos line lying interned during the war in her ports, who stood to gain by a belated entry, and it is to the credit of her scrupulously correct neutrality that she refrained. A distinguished Chilean writer, Dr. Enrique Rocuant, published in 1919 a comprehensive study upon "The Neutrality of Chile: the grounds that prompted and justified it." I think that no one who understood the situation, or the feeling that Chile sincerely exhibited, needed this explanation, however lucid and kindly, detailing as it does the absence of any such motive as brought Brazil, with her list of torpedoed vessels, to the Allies' side, and setting forth the equity of Chile's actions when faced by the acts of the belligerents in her territorial waters. There were, for example, violations of Chilean neutrality by various units of the German fleet at Easter Island and the Port of Papudo as well as in Cumberland Bay (Juan Fernandez); against these violations Chile vigorously protested; when the British *Glasgow* followed the *Dresden*, escaped from the battle of the Falklands into Cumberland Bay, found that vessel with flags flying and guns pointed and promptly sank her, Chile made similar forcible protests. But she accepted the British regrets and offer of satisfaction with very ready graciousness.

Two years after the close of the great war Chile became, as a direct result of her old and cordial relations with the British navy, in an unprecedentedly strong naval condition.

Strength of the Chilean Navy

In August, 1914, two dreadnoughts were building at Elswick for the Chilean Government, the *Almirante Latorre* and the *Almirante Cochrane*, the price of each vessel being £2,800,000. A number of fast destroyers, also constructed by the Armstrong Whitworth Company, formed part of the Chilean naval developments, two of these, the *Lynch* and the *Condell*, being already in Pacific waters when hostilities broke out. The dreadnought *Almirante Latorre* was completed speedily, taken over for British Government service, and did good work under the name of H.M.S. *Canada* during the four and a half years of the conflict; in April, 1920, she was repurchased by the Chilean Government, which obtained for the comparatively modest sum of £1,400,000 not only this fine vessel but three more destroyers, sister ships of the *Lynch* (the *Williams Rebolledo*, *Simpson* and *Uribe*) and a naval tug. About the same time the British Government also presented to Chile six submarines and fifty aircraft, a gift associated with British appreciation of the sympathetic attitude of Chile at the time when the exigencies of war brought about detention of the vessels under construction.

The dreadnought *Latorre* displaces 28,000 tons, has a length of 125 feet, beam of 92 feet, and draws 28 feet of water. She carries 30 guns of 14 inches, 3 inches and 4 inches, as well as a number of machine-guns and four torpedo tubes. Her speed is 23 knots, and her full crew 1075 men. She burns coal and has a bunker capacity

of 1200 tons. The five new destroyers each displace 1850 tons, are 320 feet long, are armed with six 4-inch guns, and have a speed of over 31 knots; bunker capacity, 507 tons of coal; crew, 176. These vessels were laid down in accord with the plans created for the modernisation of the Chilean fleet in 1910, and their incorporation into the navy of Chile renders this country the possessor of an excellent fighting squadron, equipped in consonance with the experiences of the great war.

The possession of good modern vessels of war is one thing; adequate operation of them is quite another, as more than one young nation has discovered to her cost. In Chile, however, a traditional naval feeling has existed for a century, aided by the inheritance of a considerable proportion of blood from British seamen, and the work of a group of British naval instructors who were mainly responsible for efficient development in the service — as the German military instructors moulded at least the exterior of the army in the years before the war.

When I had the pleasure of visiting Chilean naval vessels in Talcahuano in 1920 at the invitation of the genial Admiral Fontaine, it was difficult to realise that the sturdy and well-groomed young officers, many of them bearers of British names, clad in replicas of the British uniform, were going to a foreign country when they set out, a few days later, to fetch back from Britain the new Chilean ships of war.

The Chilean fleet in early 1922 consisted of two battleships, the French-built *Prat* (acquired 1890), with a war strength of 466 men, and the British-built *Latorre* (1913–20) carrying about 1100 crew; the two armoured cruisers, the *O'Higgins* and the *Esmeralda*, were constructed at Elswick in 1897, carrying nearly

600 men each; three cruisers of another type, the *Blanco*, *Chacabuco* and *Zenteno*, were built in the same yards following the acquisition in 1890 of the French-built *Errazuriz*. In addition to these large vessels, Chile has two torpedo cruisers built by Laird in 1890; the *Tomé* and *Talcahuano;* five modern destroyers (flotilla leaders) constructed between 1912 and 1914; seven older destroyers (the *Thompson*, *O'Brien*, *Jarpa Gamero*, *Orella*, *Riquelme* and *Serrano*, carrying 88 men each) built at Laird's; five torpedo-boats (*Contreras*, *Hyatt*, *Mutilla*, *Rodrigue* and *Videla*) built in 1896 in the Yarrow yards, carrying 36 men each, war strength; the six new submarines referred to above, built by the Electric Boat Company, Ltd., in 1915, needing a total war strength of 108 men; one training ship, the *General Baquedano*, built at Elswick in 1898, a schooner with auxiliary engines, carrying 253 men; three transports, the *Rancagua*, *Maipo* and *Angamos*, with a complement of 86 men each; one sailing ship, the *Lautaro*, built in Glasgow in 1896; ten patrol boats, of which six older vessels were built on the Seine between 1890 and 1905, while four boats acquired in 1919 were built in Helsingfors. There is also still upon the list an old ironclad, the ex-*Cochrane*, built at Elswick in 1875, carrying a crew of 132 men.

Chile reckons the peace strength of her navy afloat and ashore at 8377 men, while the naval expenses amount to about 14,000,000 Chilean pesos; in war times the personnel would be increased by 1020 men, costs being brought up to 15,200,000 pesos. Naval reserves are calculated as 35 per cent over the war footing, as regards personnel, while in the event of hostilities aid of great practical value exists in the steamers of the Government-controlled Compañia Sud-Americana, transformable into auxiliary cruisers.

A certain number of men are annually recruited compulsorily for one year's service, but as these conscripts only amount to three or four hundred, the naval forces are chiefly made up of volunteers who enlist for three to ten years; many conscripts after serving their initial year elect to remain under this system. In a maritime country such as Chile seamanship is popular, and the navy never has difficulty in filling the lists with young men who are developed rapidly into smart and well-disciplined sailors. The naval schools of Chile are adequate and well equipped: in Valparaiso is a fine establishment training 200 cadets, of whom 20 to 30 are annually passed as junior naval officers; the Naval Academy, part of the same building, trains twelve higher rank officers. Also in Valparaiso is the Navigation School, passing about six officers yearly, and the School of Mechanics training 120 pupils is supplying yearly 30 to 40 petty officers. Cadets of the Naval School receive a second-class midshipman's certificate after five years' instruction, and are then sent to the *Baquedano* for advanced technical training and a 2000-mile sailing trip, before the first-class certificate is granted. It is significant of Chile's high repute as a trainer of young sailors that cadets from several other South American countries are to be seen in Chilean naval schools.

Besides the Valparaiso establishments, Talcahuano has a Mechanical School for naval engineers, with 200 cadets in training; here also young officers obtain instruction in torpedo work and radiotelegraphy; this school turns out about 120 seamen, 30 wireless operators, and 20 midshipmen, as well as qualifying an average of 10 officers. On board the ex-*Cochrane* is a gunnery school, training 120 men every year; on the sailing-ship *Lautaro* is a school for training pilots of the Chilean

merchant marine, as well as for the navy; the corvette *Abtao* is used as a training school for boys, and here 150 lads are prepared yearly, with the obligation of serving five years in the navy. The *Baquedano* corvette receives boys from the *Abtao* and midshipmen qualified from the Valparaiso school for a year's voyage of instruction before they assume duty in the regular service.

Chile has four naval bases, at Arica, Valparaiso, Talcahuano, and Punta Arenas; the latter has none but mobile defences, since the Treaty made with Argentina at the time when boundary limits were settled stipulates that the Strait of Magellan shall not be fortified, a decision which will probably be modified in view of Chile's undoubted right to protect the property and lives of her nationals in the rapidly developing district of Punta Arenas and a number of inlets and islands. No belligerent or other vessel would be prevented by Chilean fortifications from passing from Pacific to Atlantic waters or *vice-versa*, since the Cape Horn route offers open waters.

The Hydrographic Bureau attached to the Chilean navy has been responsible since its inception in 1874 for constant exploration and surveying work directed to all parts of the coast, but particularly to the intricate waterways of the south. Over 150 maps and charts have been published by this Bureau, constantly in communication with the equivalent services in the most advanced countries.

The three first-named naval bases possess fixed land defences, as well as movable and submarine defences; at the chief station, Talcahuano, are two dry docks, one of 45,000 tons and the older of 15,000 tons capacity, as well as a floating dock of 1200 tons. Arrangements are also made with private dockowners in Mejillones (Antofagasta) and Valparaiso for repairs when needed,

the shipyards of Punta Arenas, Chiloé, Valdivia, and Constitución also offering useful help both as regards construction and repair work. In point of numerical strength, the Chilean navy is second only to that of Brazil, while as a matter of fighting record this service has been conspicuously successful on the three occasions when Chile has been at war during the last hundred years. Her history is firmly bound to her maritime tradition, and her political influence in the future will undoubtedly be considerably affected by her vigorous command of the sea.

The army of Chile is a citizen army; its strength, year by year, is under 20,000 men, of whom about half are newly conscripted; but every healthy man over twenty-one years old is due to receive a year's training, and is as a matter of fact very rapidly made into good fighting material. I have seen extemely smart soldiers turned out in six months' time in the training camps of Chile.

There is no doubt that in case of need the country could raise and equip a hundred thousand men at least partly trained to arms in a few weeks' time. Discipline is good, the uniform neat, weapons of modern pattern and well-kept. The cavalry is conspicuous for first-class condition in particular; horses and horsemanship are of a remarkably high quality.

The aircraft branch of Chile's service is being steadily developed; the daring and skill of the Chilean aviator was displayed when Lieutenant Godoy crossed the Andes into the Argentine — the pioneer to perform this hazardous feat.

CHAPTER XIV

IMMIGRATION

The First Immigrants of the South. — Araucanian Lands.

Organised immigration efforts began in Chile just before the middle of the nineteenth century, during the régime of President Bulnes; they ceased within a few years, and recommenced between 1881 and the end of the century: thenceforth the flow has been regulated by a series of laws of strict tendencies. For a number of years the largest contributor of blood to Chile has been Spain, but there are no colonies such as those created by the Brazilian system, newcomers of today usually finding industrial employment in cities, or the coal, nitrate and copper camps. For several years before 1914, when immigration practically ceased, the average entry was less than 2000, of whom at least 75 per cent were Spaniards. Chile's first batch of regular immigrants arrived in 1850, following the efforts of an energetic agent in Europe. There were 70 German men, 10 women and 5 children in the party, who sailed round the Horn, had a passage of 120 days and were landed at Corral. Both Valdivia and Corral were economically dead at this period; it would perhaps be more exact to say that they had never lived. The sea-port and the riverine city had been maintained as frontier posts against pirates on the ocean and Indians on land during the Spanish colonial days; a small mixed population had grown up as a result of Valdivia's utilisation as a dumping-ground for convicts from all the West Coast. Evildoers were shipped here as a convenient means of obliteration, and a number never returned north. For

thirty years following independence from Spain Valdivia languished, the forts decaying and the soldiers indifferent. There was no connection with the rest of Chile except by sea, for the land of the unsubdued Araucanians lay, a broad belt of forbidden land, below the populous towns of the Central region.

Corral had twenty-eight houses when the Germans landed; Valdivia's plaza was a rubbish-heap, the streets unmade, the one-story houses of mud had unglazed windows. To add to the troubles of the agent who had brought the settlers, governmental negotiations for land on which to plant the colony had not been completed. Vicente Perez Rosales, the agent, tells in his memoirs that as soon as immigration to the south loomed in view as a fact, tracts of land that had been wild and valueless suddenly acquired owners and a price. Enterprising citizens went forth into the woods, found some ancient Indian who was willing for a consideration to swear that such and such a tract was his inheritance from his fathers, and, for another consideration, to sell it.

Vicente Perez found it an extremely difficult matter to fight this new flood of landowners, and had no time to spend upon litigation; so, philosophically, he adopted similar methods, and presently acquired territory. But meanwhile provision had been made for the first arrivals by the public spirit of Benjamin Viel, a French citizen of Valdivia, who gave for their settlement the pretty Isla de la Teja which lies at the confluence of the Calle-Calle and the Cruces rivers in front of Valdivia City. Today the island is covered with prosperous businesses, most of them carrying German names — breweries, a paper mill, two or three shipbuilding yards.

The agent then went to look for interior land for the next batches of colonists, and, finding that forest

Valdivia, a Flourishing New Southern City.
Punta Arenas, the Southernmost City in the World.
Puerto Varas, facing Calbuco Volcano, Lake Llanquihue.

country was unclaimed, started to explore what was still virgin country to the white man. He lived on honey and wild nuts, struggled through dense woodland to the edge of Lake Llanquihue, chose his ground, and then gave his chief Indian scout, the celebrated Pichi-Juan, thirty pesos to burn clearings through the heart of the forest. It was this Indian who brought the first fifty yoke of oxen to the borders of the Gulf of Reloncaví, driving them through the jungle from Osorno and opening the first track.

Pichi-Juan took three months to burn a belt five leagues wide, and fifteen leagues long, through the Osorno Valley, leaving isolated woods to serve for house-material and fuel. Puerto Montt, at Melipillo, was founded in February, 1853, among blackened stumps, and the new colony, also of Germans, had two bad winters when the crops rotted in the ground; but by 1861 had progressed so well that the town was made the head of the province.

One hundred and five more settlers had come in 1852; another batch four years later. By 1858 Puerto Montt was self-supporting, with cultivated fields, flour mills, and was exporting brandy and honey, planks, tanned leather and wheat flour. Between the foundation of the settlement and 1864, when immigration of German familes ceased, 1363 people had entered. Henceforth the opened territory received continual additions of energetic people from many parts of the world, Chileans themselves went south, and today there is no better developed and managed part of Chile.

Araucanian Lands

A new spurt of immigration occurred after 1881, when the Mapoche Indians' obstinately held claim to

sovereignty over the broad belt of lands known as Araucania was finally destroyed by the republican forces of Chile. With the frontier barrier overthrown, farming lands lay open, and the Government made a fresh bid for European settlers.

Agents were sent out to Switzerland, France, England and Germany, and prospective colonists were offered 40 hectares of land (about 100 acres) in some regions; in others, twice this amount; part of the passage-money was given, a yoke of oxen, seeds, implements, materials for house-construction, and a cash advance towards the expenses of the first year. Against these advances was set off a mortgage upon the property, to be repaid in three years.

By the year 1884 a French-Swiss colony had been established at Quechereguas, and another at Traiguen, fifteen miles distant. In the same region, at Victoria, were Germans and Swiss; French settlements had been made at Quina, Angol and San Bernardo, while in the Temuco region were more Swiss colonies, as also at Quillen, Puren, Galvarino, Contulmo and Ercilla. Between 1881 and 1887 the European newcomers had invested 8000 francs (the Chilean peso being then worth five francs) in land, and the colonists in Araucania numbered about 4000.

Their early life had its difficulties. When railways began construction through the long-secluded territory the Indians became infuriated, and the unfortunate colonists suffered from repeated raids. Property was destroyed and settlers attacked and killed when the Angol-Traiguen section of the line was commenced, and eventually a special police force was established to protect the new settlements. The Swiss Government made investigations through their consulate in Valparaiso, raising certain points in connection with the

well-being of the Swiss immigrants, their physical security, and delay in obtaining land titles, and, although the Chilean authorities did their best to ameliorate conditions, a check to the invitation extended was felt for a time. However, the young towns began to prosper, the Chilean Government planned and began more railways, and before the end of the century the whole territory had been tentatively opened. Cultivated fields spread over the face of the old Indian reserve, joining eventually with the Valdivia and Llanquihue lands settled thirty years previously.

Two small specialised groups of immigrants are to be seen in the south in addition to the German and Swiss wave. After the last Boer War, a number of farmers came from South Africa with their families, and settled upon the Island of Chiloé. Here the fair-haired children of the Boer folk thrive, the farms are neat and well kept, and the properties, many of them extending to the sea's edge, appear to flourish. The other transplantation is that of a group of Canary Islanders, a hardy folk who have acquired land on the beautiful Budi Lagoon, on the coast of Cautín Province. In the southern provinces below the Bio-Bio, however, the long existence of the Spanish outposts next door to Indian populations had its effect upon both groups. The Indians learned quickly to adopt the European habit of keeping domestic animals — they are said to have owned 50,000 sheep by 1567 — and to till the soil; the Spaniards or their descendants of mixed blood learned to live contentedly in houses of mud bricks, to eat Indian food and to prepare it in the Indian manner. The southern tribes had no domestic cooking vessels: holes in the soil, beaten hard and lined with stones, were heated with wood fires, and the food, thickly wrapped in leaves, was placed in a red-hot

cavity and covered down with branches: all kinds of food together — shell-fish, birds, green vegetables, potatoes — were put in, the whole coming out as an appetising, steaming mass. This *curanto* was adopted by the mestizos, and still survives in certain localities as a favourite dish, exactly as the old Peruvian *locro*, the potato stew of Inca days, is still an indispensable item of the menu of upland West Coast towns today.

Neither coffee nor tea were to be had in the south in early days; the former in fact had not yet come into general European use, while the import of tea was forbidden under the Spanish colonial régime; the mestizos took to a drink made of ground and parched maize mixed with water, or chicha, or the infusion of yerba maté, imported overland from Paraguay. The latter custom still survives in country regions, while the colonists from Central Europe of last century filled their need for coffee with a decoction of dried, burnt and ground figs. The use of the woollen poncho, a garment excellently adapted to the climate, has long been general amongst the farming classes or any others spending much time out of doors and, especially, in the saddle.

Captain Allen Gardiner, in Chile between 1814 and 1838, observed that in the south a spade was used by the Chilenos which was a copy of the Indian implement, made of a horse's blade-bone lashed to a four-foot-long pole; that thread was spun by hand without a wheel, and cloth woven upon the "very rudest description of a loom"; and that the descendants of both races built their ranchos of an oval shape, with mud floors, wattled sides, no windows, an interior row of supporting posts, and a roof with openings at each end of a raised ridge-coping; the fire was built in the middle of the floor.

Material comforts brought by contact with the world, and prosperity resulting from access to markets, trans-

formed the mode of life after the arrival of colonists, the advent of the railway, and the commencement of steamship services. When flowers began to be seen in the window-spaces of southern houses in place of iron grilles, as Vicente Perez Rosales says, it was the signal of a new standard.

Formal colonisation in Chile is today little needed, but there is a constant informal inflow of white foreigners of good standing who in a considerable proportion marry the charming Chilean women and are added to the permanent population. No great wide spaces are undeveloped, and the natural increase of a healthy land will suffice for industrial needs.

CHAPTER XV

CHILEAN LITERATURE

Conditions of Authorship. — Historians. — Politicians, Engineers and Novelists. — The Society Novel. — Realistic School. — Poets.

Conditions of authorship in Chile are not altogether encouraging to the writer of books. The journalist has a fair chance, for in this as in almost every Latin-American country where prosperity is at least recurrent, there is a large output of daily and weekly papers; if the publishers are unable to offer any great financial reward to talent, they are keenly sympathetic, and the writer of light or learned essays is eagerly welcomed and rapidly renowned. But publishers of books, as developed in Europe, are unknown in the Americas south of the Rio Grande. Therefore the author of distinction or wealth frequently takes his manuscripts to Paris or Madrid, where he seeks a professional publisher to issue his work, and although he may share in the expenses of publication he is consoled by the assurance of expert distribution.

The way of the author publishing in Chile is harder. He goes to a printer with his book, makes a personal contract, pays the bill, and then has to market his wares. Any advertising is performed at his own expense and he must depend for sales upon the local bookstores. He is secure of receiving encouraging reviews in the local press, unless he has become unpopular

in any particular quarter for, perhaps, political reasons, and the bookstores always seem proud to display the groups of "autores chilenos" upon their shelves. But, in the case of a serious, non-fiction book, the author rarely prints more than 200 copies, and thinks himself lucky if he sells 50. A novelist who has already achieved something of a name probably prints 500 copies and may reasonably expect to sell half that number.

The lack of professional publishers all over Spanish America appears to be due chiefly to mental dependence upon other countries and particularly upon France. By far the greater proportion of books offered for sale in any Spanish-American town is French, or translations into Spanish of French books, the list ranging from such classics as the works of Voltaire, Rousseau and Nordau to Zola, Dumas, Anatole France, Guy de Maupassant and the more modern writers of fiction. Conan Doyle's detective tales still sell freely in Latin America, as do the works of Scott, Kipling, Rider Haggard, Hardy, and a few other "standard" English authors, in Spanish translations some of which are not so much incredibly bad as extraordinary misfits. The oddest translation of this kind that I have ever picked up from a Latin-American bookstall was of Sudermann's "Mill." I found it on a forlorn newstand in interior Nicaragua, and kept it as a shining example of the difficulty of translating into a Latin from a Teutonic tongue. Neither the speech of the German peasants, the routine of the mill, the ideas or scenery "went" in Spanish, and it is at least partly because a French story translates so happily that Latin America is flooded with French literature. All these translations are made in Europe, and are generally published in Madrid; as a result, Latin America reads, in the main, what Spain reads.

Under these circumstances it is admirable that the slender stream of Chilean literature persists. Examining the output, one concludes there are today two main classes of producers: first, the authors who are true artists, pricked by the age-old necessity for writing, and secondly the propagandists who for the sake of public service, or political reasons, wish to present their views. In the delicate mid-shades one finds the genuine historian; the personage whose aim is to achieve a literary reputation; and the sound economic essayist.

As regards history Chile has been well served by her own sons. The bright spirit of Benjamin Vicuña Mackenna, descendant of one of the distinguished Irish settlers in Chile, informs his "History of Chile," while excellent work was also done by Barros Arana in his monumental record. It would be difficult to exaggerate the value of another series of productions by José Toribio Medina. This delver into archives has been producing for many years the result of tireless and critical work, the books being printed "en casa del autor" (in the author's house). His series of "Documentos ineditos para la Historia de Chile" run to twenty volumes; we are also indebted to him for a detailed and fully documented account of the Inquisition in Chile, in addition to similar works dealing with the Inquisition in Peru and Mexico. He is, in fact, one of the most indefatigable workers in the Latin-American field of history. Among other living historians of Chile is Dr. Domingo Amunátegui Solar, Rector of the University of Chile, while Chilean geography owes much to Don Ernesto Greve, head of the Geographical Board in the Public Works Department in Santiago and to the devoted work of Dr. J. G. Guerra.

Of political monographs, Chile has sufficient writers

of this class of work coming from the ranks of journalists as well as from those of the professional politician; a glance at a pile of such pamphlets leads inevitably to the conclusion that only a small proportion can possibly be disposed of by sales. But among the political writers whose essays are frequently of wider interest is the author of "The Neutrality of Chile," Enrique Rocuant.

The distinguished engineer, Santiago Marín Vicuña, is one of the best Chilean writers upon economic subjects, his range covering railways, mines, irrigation, ports, canals, etc. The press of the excellent *Mercurio* of Santiago reprints in book form many of these and kindred articles of national concern, performing sound work in bringing the acute problems of the country before the public, never more needed than in republics where continuity of domestic as well as foreign policies is often lacking.

In the realm of fiction it cannot be said that Chile is rich. She has never yet produced a great novel. But there is consolation in the fact that neither have most of her sister states, the greatest wealth of literature, particularly of the genuinely national school, flowering in Portuguese and not Spanish America; the novels, belles lettres, historical studies and poetry of Brazil have been and are poured forth in quantities that are torrential compared with the thin streams from many other Latin-American countries. The fact is curious when one considers the present strength of Spanish literature compared with that of Portugal. It would be unfair to Spanish America if one did not seek an explanation of her attenuated literary production on other grounds than those of mental capacity, and unfair to Chile if her output were not considered in relation to that of all other parts of Spanish America.

Spanish America during the major part of the nineteenth century underwent constant political upheavals resulting in the preoccupation of the most brilliant men with presidential disputes and, not infrequently, the exile of the most active citizens from a share in their country's advancement and ideas. Behind the former Spanish colonies lay, also, a traditional acceptance of formalities and inhibitions that were far from encouraging to intellectual development.

Nevertheless, here and there rose bright founts of literary production during last century. It is not surprising that the best of these originated in the regions where the viceregal courts had been established for three hundred years, where the Royal Audiences and universities had been set up and a nucleus of well-educated people settled. The best-known novel of South America (aside from Taunay's famous "Innocencia"), the sentimental "Maria" of Jorge Isaacs, is not a case in point, however, for the author, writing in proud and intellectual Colombia, was the son of an English Jew.

But amongst the shining examples to be found is the list of novels put out by José Milla in Guatemala, and the work of Ricardo Palma in Lima. Milla, an indefatigable worker of fine intellectual training, put most of his romantic-historical novels into a colonial setting, and enjoyed a great local vogue, while the "Tradiciones de Peru," although purporting to be legendary rather than fiction, strikes a somewhat similar note.

Chilean literature has not developed along like lines. Here the development of the novel was chiefly based upon the internal political struggles of the country during the later part of the nineteenth century, and, with such themes as that of the revolution against Bal-

maceda fading from public interest, the military-patriotic story has yielded to two chief classes, the society novel and pictures of the life of Chilean peasants and workmen.

The former are not infrequently of an insufferable length and insipidity; the scene is nearly always confined to Santiago, and the author devotes half his pages to minute descriptions of the heroine's costumes, while the rest of the space is taken up with endless discussions about *amor*. For instance, in the highly reputed "Martin Rivas" of the late Alberto Blest Gana, one of the most polished and admired Chilean novelists, it is impossible to discover why Edelmira, Leonor, Adelaide, or Matilde should "love" or dislike Martin, Agustin, Rafael, Emilio, or Clemente; not only is all the conversation of the young people based upon the question of whether someone does or does not cherish a heart-affair, but all the fathers, mothers, uncles and brothers are represented as perpetually running about suggesting that their sons, daughters, sisters, etc., should enter into matrimony. The high principles of the virtuous Martin do not prevent him from suborning a soldier and police official in order to escape from jail, but his worst crime in the eyes of the reader is likely to be his interminable letters of loquacious sentimentality, which unfortunately set as well as followed a fashion. "Los Transplantados," displaying the Chilean who elects to live out of Chile, is generally placed second in popularity. This novel and "Martin Rivas" were imitated in a trickling stream of politico-social-amatory novels, of which perhaps the best-known late successor is Luis Orrego Luco's "Al Traves de la Tempestad," in two thick volumes whose pages, devoted as they are to unctuous accounts of the heroine's feathers and embroidered dresses, are relieved by

occasional strokes of interesting political portraiture of thirty years ago.

By far the most interesting and vivid fiction of today is that of the realistic school, dealing with the Chilean workman, bandit, etc. The methods of Blasco Ibañez inspire much of this output, and it frequently happens that in order to achieve an appearance of strength the author descends to a sordid brutality that is apt to defeat its own ends. We don't believe it. This murdering, lying, callous drunkard is not a typical Chileno, says anyone who knows Chileans, and we begin to suspect the novelist of cultivating misery in the first place because he thinks it makes his work strong and secondly because he really has not studied the Chilean working-class very thoroughly, and trusts that his readers are equally unaware. An example of this class is "El Roto," by Joaquin Edwards, published in the middle of 1920. "El Roto" followed the work of several other writers dealing with the life of the *campesinos* (countryfolk), miners, *huasos* (cowboys), etc., of Chile. Baldomero Lillo is perhaps the most lucid, restrained and sympathetic of the members of this school, and his "Sub-Terra" is a stronger collection of short stories than those of "Sub-Sole." Lillo is the avowed friend of the poor and simple; his miners and beggars are invariably wronged, and the bailiff or foreman the wicked aggressor. His most successful tales are pitched in a minor key, a tragedy the inevitable conclusion; but his delicacy of expression, admirable sincerity and brevity, and the plain fact that he knows the life of which he writes, single him out from the brutal-realistic stream. Lillo worked in the coal-mines of Lota in his youth, was afterwards an employé in a store in Lebu, and did not begin to write until years afterwards he came to Santiago and joined the band of

young Chilean writers that included his distinguished brother, the poet Samuel Lillo. Don Baldomero is not a fertile producer, but his work is of steady quality. Another portrayer of virtuous *campesinos* is Federico Gana, whose "Días de Campo" is a pleasant, smoothly written series of scenes. In quite another manner are the stories of Mariano Latorre, whose most striking volumes are "Cuentos del Maule" and "Cuna de Cóndores." Latorre's background in the latter tales is the Chilean cordillera, a region plainly well known to him; he has a gift for incisive description, and if his characters are frequently insensible, melancholy and animal, they are at least rarely sentimental. Don Pedro Cruz, a well-known Chilean critic, has criticised Latorre for playing to the gallery with his sententious insistence upon the characteristics of the Chilean race as displayed by his rather morbid peasantry, and, speaking in general of the school to which Latorre belongs, declares: "We are tired of the idiocies of Peiro, the brutalities of Goyo, the sensuality of Florinda, the cunning of Ermelinda, although all this is presented to us with a mixture of dawns, sunsets, trees, brooks and fragrant breezes," and roundly charges the authors with lack of imagination and inadequate study of their own environment; the gross peasantry shown in these stories is not, he says, genuinely Chilean, as it pretends to be: "Character consists in a mode of thinking and feeling, and these writers seek the national character in precisely those individuals who think and feel the least."

Among the minor writers of fiction are Augusto Thompson, Fernando Santiván, Diego Dublé Urrutia, Egidio Poblete, Rafael Maluenda and Francisco Zapata Lillo, most of them writers of short stories and delicate sketches rather than of profound studies. A tendency towards decision of style and condensation of expression

has undoubtedly made itself felt during the last decade, and the scores of facile pens in Chile promise the development of the national novel.

Amongst the most interesting recent work is the output of a group of Chilean women writers. The charming "Tierra Virgen" of Señora Echeverria y Larrain ("Iris") describing the southern lakes and woods of Chile, is a cameo of literature, while the work of two younger writers, Laura Jorquera ("Aura") and Elvira Santa Cruz ("Roxane") is sincere and of remarkable promise. The former writer's "Tierras Rojas," a tale of life in the high copper plains of Antofagasta, is a genuine picture and her "En Busca de un Ideal" a pleasant love story. Elvira Santa Cruz has, I think, done nothing better than her "Flor Silvestre," with its presentation of life in the Chilean countryside.

Drama has received a number of Chilean contributions, although it is but rarely that the visitor to Chile has the opportunity of seeing a Chilean play. Acevedo Hernández, Videla y Raveau, Armando Monk, and Rafael Maluenda have all written plays of merit. But while playhouses are chiefly filled with foreign companies acting foreign plays, the Chilean author has little to stimulate his talent.

Like every other Latin-American country, Chile claims a large number of delightful versifiers. A sense of melody and love of sweet words is part of the Latin inheritance, and development of sentiment is encouraged by the fine climate, physical beauty and spring of life found in such happy regions as Chile. The musical quality of the Spanish tongue lends itself to the expression of emotion, and no shame is felt in fervid outbursts; environment and vehicle combine to encourage the poet of South America.

There has been for half a century a considerable group of young poets in Chile, many of whom turn in later life to politics, journalism or another profession; the residuum of mature poets is small. But this is not because Chile is an unkindly host to the poet: on the contrary, she is a genial foster mother. The world does not forget that the greatest of Latin-American writers of noble verse, Rubén Darío, although a Nicaraguan-born, found here his first literary encouragement, and that the electrifying "Azul" was published in 1888 in Santiago. Darío was at the time a weigher in the Custom house at Valparaiso, and Armando Donoso says, in his Anthology of Contemporary Chilean Poets, that he was no doubt a very poor weigher. At least, however, he was immediately recognised as a great poet, and it was Chilean appreciation that set his feet upon the triumphal path that he trod until his death. As kindly was Chilean nurture of the genius of another exile, the Venezuelan poet Andres Bello.

Following Darío's shining wake, a cluster of Chilean verse-makers began to publish in the early 90's: the beginning of the new century showed a growing list as the work of young Chileans. Included in these early volumes is the "Ritmos" of Pedro Antonio González; "Versos y Poemas," by Gustave Valledor Sánchez; "Esmaltines," Francisco Contreras; "Campo Lirico," Antonio Borquez Solar; "Brumas," Miguel Recuant; "Del Mar á la Montana," Diego Dublé Urrutia; and "Matices," by Manuel Magallanes Moure, who has since greatly added to his early laurels. Recently a selection of his poems, "Floreligio," was published by J. Garcia Monje in Costa Rica, that stronghold of Latin-American literature. Magallanes Moure is an excellent painter as well as a poet of the front rank in Chile.

Striking a less contemplative and minor note than Moure, the distinguished Pro-Rector of Santiago University, Samuel Lillo, is one of the most admired poets. His "Canciones de Arauco" has a good deal in common with the verse of Brazilian "Indianism," and the "Canto Lirico," "Chile Heroico," "La Escolta de la Bandera" and the poem to Vasco Nuñez de Balboa, strike a patriotic note. No poems, perhaps, are more widely known in Chile than those of the singer Carlos Pezoa Veliz, dead in his promising youth; and other well-loved verse is that of Victor Domingo Silva.

Again in the realm of poesy the Chilean woman has a high place. The brilliant lady who hides her identity under the pseudonym of Gabriela Mistral is not only a poet but an authority upon literature: a few years ago she was awarded the Nobel prize for literature in partnership with the Spanish dramatist Echegaray.

CHAPTER XVI

NATIVE RACES OF CHILE

Inca Control. — Racial Divisions. — The Southern Tribes. — Araucanians. — Race Mixture. — Archæology.

Before the coming of the Spaniards to Chile, an important line of division already lay between the native folk who accepted the domination of the Inca and those who successfully resisted his rule. The physical sign of that division was the Maule River.

But both north and south of the Maule the various tribes differed widely in blood, in speech and habits and in capacity for the adoption of alien culture. Divergence of a marked character must have existed for a long time between the primitive, fish-eating coast-dwellers and the people living in the great longitudinal valley, who, although they were in all probability originally hunters, had taken to the cultivation of such food staples as maize and potatoes. The coast dwellers were not all of the same race, although necessity induced somewhat similar living habits: T. A. Joyce shows that upon the strip between Arica and the Atacama desert were a colony of the Uros, whose real home was on the Desaguadero River leading south from Lake Titicaca, but who were planted on the Pacific littoral in accordance with the Inca system of transferring tribes. South of these groups were the wood and skin huts of another colony brought from

Bolivia, the *mitimaes* of the Charca tribe, who buried their dead in a contracted position. South of Tarapacá were groups known collectively as Changos, living the same simple life but practising extended burial. The practical, industrious system of the Incas could do little with such folk except, probably, to levy a tribute of fish, and chief attention was turned to the fertile country of the central valley. Here agricultural life seems to have been forced upon certain regions through scarcity of game, for although guanacos, birds and a few small edible animals are found all the way from Coquimbo to Cape Horn, such creatures as the pudu and the huemul (small and larger deer) are found only in forestal belts. South America has never possessed any great quantity of large game animals, and Chile in particular has a surprisingly short list of indigenous quadrupeds, although she has always been well stocked with both land and sea birds.

Today the "Indian" has practically disappeared from the major part of the coast and from the beautiful central valley of Chile. The 50,000 Araucanians who survive in the Temuco region (Province of Cautín) do not retain more than dwindling traces of their former customs; in the deep forestral area of Valdivia and Llanquihue, as for instance upon the island in Lake Ranco with its group of "Huilliches," a few people are found under conditions still approximating to their pre-Spanish state. But in the extreme south where the freezing water-mazes of the storm-swept archipelagos have tempted few newcomers, the native groups of Yahgans and Onas and Alakalufs are living in much the same manner as that described by observers three or four hundred years ago. Here and there, as near the newly developed farms of Tierra del Fuego, where the native folk have learnt herding, habits

have been definitely changed, but in the main the folk of the Magellanic regions have been left in undisputed possession. The natural conditions under which they exist are not conducive to cultural development. The daily struggle for food absorbs all effort, and it is only when an outside civilisation armed with tools and machinery and modern economic knowledge has imposed its will that the effects of the inclement climate have been conquered. Despite missionary effort, the southerly native people, among the most primitive and most miserable tribes in the world, sharing the common fate of their happier kin of the pleasant lands to the north, have almost disappeared. Today the traveller traversing by local steamer the wonderful Smyth's Channel and nearby inlets and fjords may see, as the earliest travellers saw, the open canoe of the "Indians" with a wood fire burning continually upon a tiny hearth of clay, paddled through the chilly waterways by folk whose dark skins are practically unprotected from the wind and rain. The Fuegians meet any passing vessel to beg for clothes and food as they begged from the *Beagle*, but contact with newcomers has taught them nothing but a new list of small demands. In the developing life of Chile they seem to have no place.

To discover the true racial differences between the native inhabitants of Chile before the Spanish conquest is a task requiring more evidence than lies as yet before us. It is rendered more difficult by the absence of temples or permanent dwellings and by the comparatively small witness yielded by graves. Only in the north, in the dry belt, are cemeteries offering a considerable bulk of remains; here are such sites as Calama and Pucara, near Chiu-Chiu, where Inca influence is plain although the residents had certainly attained to no more than a modest cultural status. The pottery found in the ceme-

teries of Arica and the Antofagasta sites is rough and simple; the weaving coarse. The houses were mere quadrangles of cemented rubble where, as at Pucara, ruins survive in the rainless country. These are, however, beyond ancient Chile. Nothing so advanced as this proof of settled communities is found south of Copiapó, and seekers must fain rely upon the evidence of shell-heaps and arrowheads, plus the records of early visitors and such help as is afforded by the life of indigenous folk surviving today.

The names of tribes as recorded or in use are not racial. The cloud of these appellations confuses the enquirer until he realises that Araucana is a Spanish derivative of the Quechua "Auca" or rebel; that Picunche means simply "People of the North" as Huilliche means "People of the South"; Puelche, "People of the East," and Moluche, "of the West," while the name Mapoche or Mapuche indifferently exchanged for Araucanian today is a local term indicating inhabitants of a certain territory. Joyce considers that the evidence proves existence of an agricultural folk in Central Chile before the Inca conquest, speakers of the Araucanian tongue prevailing from Atacama to Chiloé. Upon these people of sedentary habits had descended a wave of nomads from over the Andes, Pampa-bred hunters who as in many allied cases adopted the speech of the invaded land. The speech of the rebels or Aucaes survived Inca control following the invasion from Peru about the middle of the fifteenth century. Of the tribes found by the Spaniards a century later, the most northerly Araucanian-speakers were the Picunche, a mixture of Pampa immigrants with remnants of the old "rebel" stock, the latter predominating; the Moluches, farther south, showed signs of descending in the main from the Pampa invaders, although among them were

found agricultural groups where older habits had prevailed. In the Andean foothills were the Puelches, closely allied to tribes of the Argentine plains, who had crossed the lower mountain passes between Villarica and Corcovado.

Far south, three racial divisions are admitted. Two of these are commonly known as Fuegians, and these scant tribes, Alakalufs of the southwest and Yahgans dwelling in the most southerly part of Tierra del Fuego, are a much more primitive folk than the few and diminishing Onas, a taller, round-headed race allied to the big Patagonians, and inheriting from their kin a fair degree of hunting skill. A number of the Onas have taken kindly to a shepherd's life since the creation of scientific Fuegian farms, but the Yahgans remain as they have always been known to history, a fish-eating, practically amphibious race, unreconciled to civilisation. The long-headed Alakalufs of the Chonos Archipelago have been forced, whatever their origin, into a mode of life much like that of the Yahgans, depending chiefly upon the sea for livelihood, using arrows and harpoons for killing fish, constructing canoes and showing skill as watermen.

Very finely worked arrowheads have been and are still being made by these southerly folk: Chilean specimens are among the best weapons of the kind found in the Americas. But neither the Onas nor Fuegians have ever constructed pottery, or know anything of the loom; shell-fish, seal-meat and fungus, forming their chief food, is frequently eaten raw. Alakaluf homes are huts of sticks, covered with skins, and carried by canoe from place to place. They have no chiefs, dwell in family groups, and we know nothing of their gods. They have as a whole resisted efforts to Christianise them.

Araucanians

Among the great body of Araucanian speakers dwelling in Central Chile at the time of the Spanish conquest a more definite culture existed. Religious beliefs were probably genuinely Chilean, since they are quite distinct from the ideas found on the other side of the Andes. The supreme Deity Pillan was a sky-god with his dwelling in the volcanos, and was propitiated by that world-wide institution the medicine man, here called a Machí. Faith still survives, but so completely has soothsaying been relegated to women that a case has been known of a male Araucanian dressing as a woman and keeping up an elaborate life-long farce in order to hold the berth. "Cures" of the sick by fumigation and various drinks, and yearly ceremonies under the sacred canelo (a kind of cinnamon) tree, called forth the major symbols of the Araucanian cult, but there were neither temples nor images of deities.

The aboriginal Araucanian may be credited with the invention or adoption of chicha, a fermented drink made of berries or maize (and after the coming of the Spaniards, of apples from the trees planted by colonists or missionaries); of the poncho, well woven of guanaco wool, or later of sheep's wool; and of the cultivation of maize and the potato. Native to the West Coast, the potato grows wild today over the chief part of Chile and the adjacent islands, and formed a valuable contribution to the limited list of pre-Spanish foods. The use of certain seaweeds, with cochayuyo as the most succulent, in stews, was doubtless an aboriginal habit; it survives in South Chile, and in such coastal markets as that of Valdivia this dried seaweed is sold and eaten in enormous quantities. The seeds or nuts of the Chilean pine formed another part of the old diet. The

method of cooking food in stone-lined holes in the ground is a native custom that remained in use among both "Indians" and Creoles in the more remote districts until recent times. There seems no doubt that the game called by the Spanish "chueca," played with a ball struck with curved sticks, is genuinely Chilean; it bears a strong resemblance to hockey. The bolas with which the Chilean *huaso* (cowboy) is so efficient was not known on the West of the Andes until after the Spanish conquest. But with the speedy adoption of the horse and rapid increase of cattle this implement from the Patagonian pampas became widely used. Within thirty years after the entry of Pedro de Valdivia into Chile the horse had spread throughout the inhabited part of Chile, and mounted Araucanians, hardy and expert, were giving battle to the cavalry of the Spaniard.

The Araucanian fought to retain his independence for over three hundred years. It was a contest in which he was doomed to fail in the long run, but he received from his enemies unstinted appreciation of his courage. The famous poem "La Araucana" written by Ercilla, a soldier in Valdivia's army, embodies a Spanish concept of chivalry rather than that of the Mapuche; his noble Indian is a mediæval Spanish knight, and the verses frequently quoted as proof of Araucanian virtues display chiefly the convention of generous sentimentality infusing the European literature of the sixteenth century. But undoubtedly the Araucanian possessed qualities that all the world agrees to admire: he defended his own, and showed tenacity and ability in that defence. From a series of tribes living loosely in family groups, obeying no overlord in times of peace, the native folk evolved a strong fighting confederation. The Toquis, or wartime leaders,

supported by their Ulmen or district chiefs, developed genuine skill in warfare, and turned the whole of the tribes living south of the Maule into a mobile fighting community. The task was rendered easier by the old nomadic habits of a large part of the population.

The hostile relations between the earliest Spaniards and the Araucanians became crystallised with succeeding years, a feeling constantly renewed by women-hunting and house-burning raids upon the Spanish colonies, followed or preceded by ruthless attacks upon the Indian camps. The repeated treaties and parliaments arranged by the Spanish authorities with the Indian leaders during later colonial times were little more than symbols of optimism.

As far as Spain was concerned, good intentions towards the original owners of the Americas were frequently pricked to action by the priesthood, consistent advocates of the indigenous folk. When Charles V, pressed by Bartolomé de las Casas, published in the year 1542 the "New Laws" relating to the treatment of American natives it was with a determination to secure the Indians' well-being which was only surpassed by the determination of the colonists to make the greatest possible industrial use of these folk. "Our principal intention and will" declared the king, "has always been to preserve and augment the numbers of Indians, that they may be taught the articles of our holy Catholic faith and may be well treated as fellow men and our subjects, as indeed they are." The strict accompanying rules against enslavement or overwork of the Indians, and the minute instructions to the Audiencias and Procurator Fiscal were avoided with dexterity in the colonies from Mexico southwards, and not all the efforts of the missionary padres could render them effective, although these and similar laws

were repeated by successive monarchs, and notably by Philip III, at the instance of that famous apostle of the West Coast, Father Luis de Valdivia. It cannot be said that, with regard to the Araucanians, this backing was either badly needed at the time or requited with gratitude; but it was followed by missionary efforts aiming at Christianisation of these wild and stubborn people. The Father Nicolas Mascardi, working in South Chile about 1670, "merited the crown of martyrdom that he received"; nevertheless the good Philippe de la Laguna took up the task, converting "Puelches and Poyas" in the mainland region opposite Chiloé, but making, apparently, little impression of permanence. The *intransigeance* of the southerners saved them for a time, for the more amenable Picunche and simple Changos, accepting the foreign yoke, rapidly diminished — the survivors losing caste with such finality that Ocampo, writing of West Coast conditions in 1610, declared that the Indians were generally downtrodden by the Negroes imported to supplement them as workers, "with ill-treatment both of word and deed, so that the Indians called the Negroes their lords, and the Negroes called the Indians dogs." It should be said that Ocampo's comment applied more to Peru than to Chile, where neither climate nor rich mines warranted the introduction of any large number of African slaves.

Today the Araucanian who resisted Spanish control is not in better case than the docile native of the more northerly part of the West Coast. Their definite overthrow as an independent people dates from 1882, when Chilean troops seasoned by the campaign with Bolivia and Peru marched across "la Frontera" and put an end forever to Araucania as a native stronghold in the middle of republican Chile. By this time Valdivia and

Llanquihue had been colonised, and Araucania stood, fenced against north and south, in the way of free communication and development. A land reservation has been allotted in the province of Cautín, its limits beginning about half a mile outside the town of Temuco. Here dwell some 40,000 to 50,000 Mapuches. The majority are nominally Christianised, and in addition to the state schools, there are a couple of well-run British mission establishments near Quepe, where farming and handcrafts are taught. The younger folk take fairly readily to instruction, but on the whole the Indians prefer to withdraw themselves from contact with all foreigners, to live in the native *rucas*, huts of mud and thatch, to prepare food in the ancient manner, and to work only when a little money is needed to buy provisions. The women are adepts at the loom, weaving beautiful ponchos or mantos, and boldly patterned and tinted rugs and saddle-cloths. Now and again one meets in the streets of Temuco a group of Araucanians with rugs for sale: there are two or three women and the male head of the family, who is credited with doing no work but with careful shepherding of his household. The women have a certain good looks; the faces are extraordinarily broad, pale bronze in hue, with a touch of red on the cheeks; the hair is straight and black, plaited and bound with bright ribbons. The dress consists of a fold of cloth wound round the waist and held in place by a gaily patterned belt; a bodice, and a large shawl fastened with a big silver topo or pin. A wealthy woman will wear silver ornaments across the forehead, in the ears and on the neck in addition to the almost indispensable topo, and no Araucanian will sell these adornments from the person, although in hard times they may be taken to the pawnshop.

Araucanian Indian, Spinning.
Note the solid wooden wheel of the country cart.

Araucanian Mother and Child.
The hide-and-wood cradle is slung upon the woman's back when she goes outside the hut.

Racial purity amongst these survivors is not to be expected. There had been a considerable mixture of blood between North, South, and the transandine groups before the Spanish entry, brought about not only by wars and migrations, but by the custom prevailing among the indigenous folk of Central Chile of seeking wives outside the tribe. During the colonial period numbers of white women were systematically seized and held by the Indians, the resulting admixture of blood accounting for the comparatively blond strain seen in some of the Araucanian families.

Correspondingly, there was a certain absorption of native blood into the Spanish towns and settlements, Indian girls and children having passed into the possession of the Europeans from time to time: but racial traits have in both cases yielded a great deal to environment, and the mixed-blood youth of the Spanish sphere of influence is not remarkable for sympathy with the dwindling remnants of the Araucanian tribes. The child of the soil appears to be doomed here for very much the same reasons as the Red Indian is doomed in the states of the North American Union: he is irreconcilable and sullenly proud; has been conquered by slow pressure plus the spread of alcoholism and disease; and in spite of honestly-meant legislation on the part of the present rulers of the country, is progressively stripped of his remaining property. During a session of the National Congress in Santiago in early 1921, the Deputy for Temuco, Dr. Artemio Gutierrez, made a strong protest against the "constant victimisation" of the Indians by grasping exploiters. He attacked the municipal authorities for failing to defend the Araucanians, declaring that spoliation, even the robbing of the native huts, was permitted, and complained that although the State Government ex-

empts the Indian from taxes the municipalities do not. "The Indians are not even masters of the two, four, five or ten hectares they operate, for they are only in control through the grace of the State," he declared, adding that many of these folk cross to the Argentine to escape their home troubles. Conditions of the kind seem almost unavoidable in a country rapidly filling up with a new population, against which the old resolutely sets its face; nothing perhaps is more typical of this attitude than an incident occurring at the ceremony in connection with the opening of the railway into Temuco town some years ago. Amongst the personages of the vicinity invited to attend the entry of the first train were the local Indian chiefs: they came, with an entourage of followers, bedecked in feathers, with fine ponchos, mounted upon fast horses, and were placed in a long double row, facing the line from either side. The assembly waited, fidgeted, talked; but the Araucanians sat motionless on motionless steeds, their swarthy, strong-featured faces set like wood. Presently the smoke of the engine was seen in the distance, and with a piercing shriek of the whistle Temuco's first railway train rushed forward. The people swayed, applauded, crowded to the rail's edge, exclaimed excitedly: but not an Araucanian moved so much as his eyes to glance at the steel monster. It thundered forward and passed; the crowd pushed across the track, waved hands and shouted; the Araucanians sat their horses, did not turn their heads to send a look at the people or the train, and in a few moments turned off and without a word or a change of expression galloped away. The ancient rebel refused to take the least outward interest in the white men's doings.

One sees in Chile a mirror of what is happening or has already happened in the major part of the Ameri-

cas — the gradual extinction of an embryo civilization. Whatever beginnings the Chilean race had made towards the development of a social system, the evolution of a tongue and a cult, have been fruitless. In other continents the impression is given, very frequently, that the existing culture is built upon an older form, that it is the first seed of an ancient civilisation that has eventually flowered through whatever inner struggles and changes: in the Americas the developing civilisation has been introduced and superimposed, the young shoot of earliest native growth cut short and fatally withered.

The archaeology of Chile does not offer a field for study comparable with that of Mexico, Peru or Central America, with their splendid ruins of temples and burial grounds containing ceramic treasures, textiles and human remains. Because there is less that is spectacular, the Chilean area has been less adequately studied, and there is much work still to be done. Valuable researches have been made by the indefatigable José Toribio Medina, author of "Aborigines de Chile," published in 1888, and by R. E. Latcham, author of "Anthropologia Chilena," while the devoted energy of Dr. Aureliano Oyarzún in the field of physical anthropology is of the highest interest. Dr. Oyarzún has published many ethnological monographs and directs an excellent ethnographical Museum at Moneda 602, Santiago. A second collection in Santiago, containing much Peruvian pottery obtained during the War of the Pacific, is housed by the State, while a third is in the University buildings, possessing many specimens from Easter Island. Concepción owns a small but well-kept archaeological museum, but the scarcity of purely Chilean specimens displays the gap in present knowledge.

CHAPTER XVII

EASTER ISLAND

A Lost Culture. — Fate of the Islanders. — The Statues. — The Bird Cult. — Wooden Carvings.

CHILE is the only South American country owning territory situated at a considerable distance from her shores; it was picked up, in fact, in 1888 as a kind of derelict child of Spain in whom nobody had much interest.

For Easter Island has little commercial importance; it has never yielded precious metals, includes no fair widespread lands inviting agricultural settlers, and has no woodlands nor a single river. The sheep and cattle bred upon the island are the property of one company, a British enterprise, and the natives are but a couple of hundred in number. The island lies in a lonely position, at the extreme west of the South Pacific series, and measures but thirteen miles in length and about seven in width. The hues of the land are sand and tawny; the sea is a faithful mirror of the turquoise sky; the dreamy heat of Polynesia endures throughout the year. Easter Island is lonely, lazy, unproductive, a little speck upon the broad breast of the Pacific.

But shut within its tiny compass, it holds one of the great mysteries of the world. It contains one of the keys to Polynesian culture, although it bears no apparent connection, as was once believed, with ancient American civilization. The strange, almost incredible evidence upon Easter Island speaks of a culture at once more advanced and more primitive than that

which should be most intimately connected with it. For instance, the Easter Islanders speak a language which is a branch of a Polynesian tongue; in certain aspects, the culture of the old people is clearly allied to that of Polynesia in general. But — here is the problem of the ethnologists — Easter Island possessed a written language: the early European visitors put it upon record that the learned men of the territory could read the script of the wooden tablets of which specimens still exist. But Polynesia never had a written language, and pre-Spanish South America, the nearest mainland, was equally ignorant; the nearest country to the east with any idea of such script was Central America, in the Maya culture-area, and the nearest to the west was Sumatra.

The striking and eloquent evidence of Easter Island is fast disappearing. Two hundred years ago, when it was first visited by Europeans, stone statues stood, with their tawny head-dresses, as a thick fringe upon the coast, and there were perhaps a couple of thousand natives, divided into tribes spread over the land, among whom were the small clan of "wise men" who chanted from the script of the wooden tablets.

Today the natives are reduced to a handful grouped at one end of the island, the learned men have all passed away, and not a single statue stands upright upon the platforms of the coastal memorials. A part of the sea-border where a series of highly interesting carved rocks stand is being undermined by the sea, and in a few years little will be left. Science is therefore deeply indebted to the splendid work of the Routledge Expedition of 1914–15 in chronicling the exact results of a thorough examination of the remains, as well as for the indefatigable research work throwing new light upon this strange and ancient culture.

Modern historical knowledge of Easter Island is scanty. It was discovered by the Dutch Admiral Roggeveen on Easter Day, 1722, when he was searching for a small island seen previously by the English corsair Davis. Roggeveen stayed here for a week, recorded the cultivation of sugar, sweet potatoes, bananas and figs by the natives, and noted the thirty-foot high stone statues that stood thickly upon the sea's edge. Fifty years later came a Spanish expedition under Gonzalez, who took formal possession for the King of Spain and had a map made. A few years later, in 1774, Captain Cook sailed into the western bay retaining his name, the expedition's botanist, Forster, leaving an account of the island; La Pérouse of unlucky memory was here in 1778. These later visitors saw little cultivation, thought the island poor, and, according to Cook, the natives no longer venerated the statues. When the British Admiralty sent the *Blossom* here in 1825 the figures near the shores were nearly all ruined.

Fate of the Islanders

Destruction of the natives and their peculiar culture proceeded at the same time. American sealers, short of hands, raided the villagers from the early nineteenth century, and when, about 1855, the exploiters of the Peruvian guano beds needed workers they sent slave-hunting expeditions to the Pacific. In the course of these raids one thousand men are said to have been taken to Peru, the prisoners including chiefs and "wise men." Principally at the instance of the French, who sent French-Chilean missionaries about this time to the island, a number were returned, but only fifteen reached Easter Island alive. These took back the germs of small-pox with them, and the remaining

islanders were decimated by this disease and by phthisis, introduced, apparently, by the devoted French priests. This mission had converted all Easter Island to Christianity by the year 1868, and in the zeal of proselytisation brought about the destruction of quantities of the inscribed wooden tablets.

Commercial exploitation of the island by French traders operating from Tahiti led to the shipment of many natives to Tahitian plantations and the gathering of the 175 survivors into one small settlement at the western end of the island (at Mataveri) by the time that the *Topaze* called in 1868. This vessel took away the two stone statues that are, fortunately, now preserved in the British Museum. The American vessel *Mohican* came in 1886, the paymaster Thomson subsequently publishing an account of the conditions, and retailing a few folk-stories; a statue was excavated and taken to Washington. In 1888 the Government of Chile formally took possession of the island, retaining part of the western territory for the permanent use of the natives. The rest of the island is under the control of a British stock-raising company with headquarters in Valparaiso.

That is the brief record of Easter Island from the outside. But it has been increasingly plain since archaeology and ethnology took form as organised sciences some fifty years ago that the strange series of stone figures and wooden carvings emanating from Easter Island presented a magnificent puzzle. The work done with courage and ability by the Routledge expedition will perhaps only be adequately appreciated when the remains upon the island are no longer intelligible to the remaining natives. This time is rapidly approaching, and the resulting mystery adds to the picturesque quality of this lonely spot.

The Statues

The majority of the figures bordering the sea were overthrown during tribal feuds. These figures originally stood at the end of sloping platforms of stone slabs, called *ahus*, upon which the bodies of the dead were laid, or under which they were buried; and the figure upon each *ahu* was crowned with an enormous "hat," five to eight feet in diameter, of reddish volcanic stone brought from one spot, a quarry on a slope of the volcano Punapau.

But these statues of the burial-places formed only one of the island series. The Routledge Expedition identified three roads, apparently connected with tribal ceremonies or rights, which were once bordered by giant figures; while on the interior as well as the exterior slopes of the volcano Rano Raraku, in the southeast, are scores of these strange carvings. The slopes of Raraku are almost the sole sources of the "image stone" used by the islanders, and in the quarries are to be seen huge heads in all stages of preparation, some completed and in process of removal. The figures vary in size, some weighing 40 to 50 tons, but all follow a similar design: a tremendous face, with closed lips, and long nose with a concave bend. The back of the head is so narrow as to be almost negligible, but a distinguishing feature is the length of the ear-lobes, distorted to four or five times the natural size. The back is carved with some care, and a curious design that includes circles is often marked out upon it; the shoulders are well shaped, but the arms and hands are shown by a simple and well-conventionalised method, the fingers frequently meeting across the front of the waist. At the hips the carving ceases, the rest of the stone being generally shaped into a peg for convenient

erection. Severely simple and quite primitive as the figures are, there is a fine dignity, a repose, about the slightly up-tilted faces that is impressive; the effect of the statues *en masse*, as they are still to be seen, many of them erect, with the faces looking out from the mountain on the slopes of Raraku, is remarkable, even through the deadening medium of a black and white photograph. Why the statues were carved in such number — there are 150 above the crater lake of Raraku — and why the work ceased, is one of Easter Island's problems. The unanimity of design, its peculiar conventions, and the skill and decision of the workmanship, suggest a "school"; and as the writers and readers were a special inner guild, so, apparently, were the image-makers. It is true that there seems to have been at one time an itch for carving, for in certain regions every piece of stone that projected from the ground has been carved as it lay, without any attempt to remove it: perhaps, a beneficent influence was created with each serene carved face. But it is certain that many of the statues were set up to mark boundaries, and were so well known that their special names still survive. The larger figure now under the portico of the British Museum, for instance, which comes from Orongo, is "Hoa-Haka-Nana-Ia," which may be rendered in English, "There is a friend who watches"; the inference certainly being that this statue stood on a boundary. The image-stone is a fairly soft volcanic rock, and the tools used, many of which have been found near the images in the quarries, were pieces of harder stone, roughly chipped, bearing a striking similarity to the tools found near Stonehenge, and used in dressing the monoliths. The natives had, of course, no metal. A people of extremely simple habits, they neither made any kind of pottery nor wove cloth,

using beaten bark (*tapa*) for body-coverings. Food was cooked in holes in the ground, lined with stones and heated. Fresh water was and is obtained only from the crater lakes or other collections of rain. The people seem to have lived contentedly in the many caves on the island, but also built huts of a uniform pattern: in shape long and very narrow, the hut had a floor of stones edged with a little wall of slabs; from this sprang a series of twigs, bent and interlaced together at the top, and covered thickly with leaves. Food consisted chiefly of the sweet potato, a kind of sugar-cane, and bananas; there was no animal upon the island yielding meat except a small rodent, but the islanders were expert fishermen, and also, in the season, caught great quantities of the sea-birds that visit the nearby rocks to breed.

The Bird Cult

The Routledge Expedition, with good fortune and exquisite patience, discovered and elucidated the extremely interesting story of the Bird Cult of Easter Island. Dependent upon the sea-birds' coming for an important part of their food-supply, the islanders evolved a series of rites connected with the event. The chief ceremony was concerned with the securing of the first egg, deposited on Moto Nui, one of three little rocky islets opposite the highest peak of Easter Island, Rano Kao, at the southwestern edge. At a spot called Orongo, on a slope of Rano Kao, are still to be seen fifty stone huts, where the people went in September and waited for the sea-birds' coming. Several birds visit the rocks, but it is the egg of the Sooty Tern, known as *manu-tara*, that was the islanders' objective; competition among the watchers was keen,

and only members of the temporarily most powerful clan, or their friends, could take part in the contest. The competitors, men of substance, waited in special houses, but deputed servants to swim to the islet when the season was at hand; carrying food, these men lived in a big cave, whose carvings are still to be seen, until the curious scream of the birds heralded their coming. When the first egg was found, the deputy shouted the news to his employer (who shaved his head and painted it red), and swam ashore with the precious egg in a tiny basket tied to his forehead. The victor and his rejoicing party danced ceremonially, carrying the egg, all the way from the west to the eastern end of the island, where the bird-man went to a special house for a year, at Orohié, on Rano Raraku's slope, strict tabu being maintained for five months. Each old egg was as a rule given to the incoming bird-man, and by him buried on Raraku.

Mrs. Routledge says that apparently the last year in which the dominant clan went to Orongo to await the birds was in 1866 or 1867, although the competition for the first egg survived for some twelve years afterwards.

Legends of the Easter Islanders appear to point to their racial origin upon other Pacific islands, and migration in at least two separate periods, a tradition which is confirmed by the divergence of types found, and the number of shades, from dark brown to nearly white, of the skin of the different people. Stories of the wars between the "Long Ears" and the "Short Ears" suggest that the image-makers, always depicting elongated ear-lobes, differed in tribal attributes from their opponents. None of the native settlements upon Easter Island appear to be of very old establishment.

Wooden Carvings

A curious and beautiful series of small objects is typical of the peculiar culture of Easter Island. The natives had, of course, no metal, and it must have been with stone or hardwood tools that quantities of small wooden figures made in former days in Easter Island were carved. It is not known with certainty whether the territory formerly included a larger number of trees, offering timber for this work and for the larger canoes of which tradition speaks, or whether use was made of driftwood. Today there are no trees of the quality shown by the figures.

The most striking of the old wooden objects represent human figures — rarely, those of women, and most commonly, of singularly emaciated men. Specimens of the latter are beautifully finished, and the head shows "long ears" and faces with "imperials" or little beards, and marked aquiline features, quite distinct in type from these of the conventional stone faces. These statuettes are from 29 to 30 inches in height, the carving bearing a technical resemblance to the "lizards," another highly-finished series. Crescent-shaped breast ornaments, formerly worn by women, have almost entirely disappeared, although a few specimens survive, one, in the British Museum, bearing inscriptions. The dancing-clubs or paddles belong to another series of high artistic merit, but the most interesting of the wooden carvings from an ethnological point of view are the tablets engraved with signs whose meaning was lost when, sixty years ago, the last of the *ariki* (learned men) died, a slave in the guano fields of Peru.

Tradition upon the island states that the wooden figures were originally made by a great ariki, named

Tuukoihu, one of the first immigrants to Easter Island from the western islands; but the art of wood carving still survives feebly, chiefly in the manufacture of objects for sale, as antiques, to unsuspecting visitors.

The natives today wear clothes, a habit which has probably tended to render them more liable to disease; they number about 250. Retaining their two-hundred-year-old reputation of being courageous and persistent thieves, they have however lost many of their ancient arts and are not addicted to regular work. But they are of a physically fine type, appear to possess a gift of wit, and, unless when instigated to anger by their equivalent for medicine men or women, are an amiable people. They formerly tattooed the body in definite conventional patterns; their religious cult was chiefly connected with respect to ancestral dead, and ideas of spirits, kindly or the reverse. A certain clan, the Miru, assumed possession of supernatural powers, and specially gifted men and women were given the usual homage of the medicine man. But religious ceremonies, as apart from the burial rites, initiation into the bird cult, and, later, ritual connected with the visits of European ships, do not appear to have existed.

Of weapons, quantities are found; black obsidian flakes, roughly chipped at edges, with a short stem bound to wooden handle, are typical.

Exterior communication with Easter Island depends upon the Chilean Government, sending an Admiralty vessel yearly, and upon the visits of a sailing ship sent to bring away the wool clip, product of the flock of the 12,000 sheep, by the commercial company of Valparaiso leasing the main part of the territory.

The Chilean vessel sent of recent years on the trip is the training ship *Baquedano*, a corvette fitted with auxiliary engines.

Visits of the British company's boat are rare, and the representatives at Mataveri are cut off from the outside world for long periods. During the early months of the war five vessels of the German fleet appeared in Cook's Bay: the *Scharnhorst*, *Gneisenau*, *Leipzig*, *Nurnberg* and *Dresden;* they used the island as a naval base for six days, gave out the first news, considerably garbled, of the war, and went away, first to sink the *Good Hope* and *Monmouth* off Coronel and later to meet their fate at the Falklands. The *Prinz Eitel Friedrich* also entered on December 23, went out and captured a French barque, and sunk her inside the three-mile limit in Cook's Bay, after landing her crew and that of a British sailing ship taken off Cape Horn.

CHAPTER XVIII

A NOTE UPON VITAL STATISTICS

TODAY Chile calculates her area at over 300,000 square miles, with a population not far exceeding four millions. There is plenty of room for at least twenty million people, although one must rule out from possible settlement certain areas of the rugged south, and of the arid north, where, however, scientific irrigation may bring unsuspected regions into the realm of cultivated and settled country.

The growth of population in Chile has not kept pace with that of some other of the South American nations, partly because definite efforts to invite immigration have long been discontinued. Numerical success has not always been accompanied by peaceful assimilation, and Chile, with no great untouched areas to fill, prefers to wait for the natural increase of her people. Since 1820, when the total Chilean inhabitants did not reach one million, the number has quadrupled, a few hundred thousand persons of foreign blood adding, during the century, to the stock; today the foreign-born residing in the country are calculated at 135,000, of whom 100,000 are men.

A brief examination of the population figures of Chile shows some illuminating details, and nothing is clearer than that the apparently rapid growth of certain regions is not due entirely or even chiefly to an influx from outside Chile, or to natural increase, but to a shifting of the workers from one point to another in response to industrial demand. Antofagasta city,

which did not figure at all in the census of 1875 counted 8000 people ten years later, and 70,000 in 1919. This concentration is of course a result of the magnificent rise of the nitrate industry, and while a proportion of the employés are Bolivian and Peruvian, most are drawn from more southerly Chilean districts. Valparaiso, always a prosperous city, despite recurrent earthquakes, shows a progressive rise during the last half century from 70,000 to 220,000 people, its lovely residential suburb, Viña del Mar, counting 35,000 more; Santiago also has made strides in accord with her political, social and financial status, the population numbering 425,000, as against 116,000 in 1865 and 333,000 in 1907. Concepción is another city showing legitimate and steady increases — 75,000 people today as compared with 14,000 fifty years ago. Iquique, another of the new nitrate towns, has about 50,000 people, appearing in statistics, like Antofagasta, only twenty-five years ago.

Agricultural and industrial Chillán, in the south, has over 40,000 people; Temuco, opened to the general population of Chile only after "the Frontier" was broken down in 1882, made its first appearance in the census of 1885, and has now 35,000 people. Valdivia, with but 3000 people in 1865, now has 30,000.

But Copiapó, with diminished mining, has a few thousand people less than she counted in 1865; Lebu has lost half its people since 1875, and has now less than 3000; Tomé has been practically stationary for fifty years, for similar industrial reasons.

Two new agricultural and pastoral centres in the south show sustained activity, Puerto Montt and Punta Arenas. Puerto Montt, like Valdivia, drew a strong part of its population from Germany and has today 8000 people; Punta Arenas, with less than two

hundred inhabitants in 1865, has 25,000 people. Forty per cent of these are calculated to be foreigners, chiefly Scots, or Falkland Islanders of Scots blood, and Yugo-Slavs; the only other city showing so large a proportion of foreign-born residents is Tarapacá, while Antofagasta has 16 per cent of non-Chileans.

Vital statistics in Chile are carefully kept and promptly published; they do not always give satisfaction. A storm of protest was roused, for example, in the Santiaguino press, led by the outspoken and admirably edited *Mercurio*, when Santiago's figures for the first four months of 1920 were issued. Infant mortality was shown to be extremely high in that period, — 5237 deaths to 4777 births, — a fact which called for investigation by the health authorities, while stress was laid upon the listing of 2402 of the births as illegitimate. "If on the one hand our population does not increase in the normal proportion, while on the other the race is debilitated in the manner revealed by the figures, it is useless for us to claim proudly that we are a well-defined and homogeneous nationality," declared the *Mercurio*, and a cloud of articles appeared to account and to suggest remedies for the conditions shown by the official figures.

As regards infant mortality, there seems to be no doubt that the rate is high for Chile, a fact surprising in view of the healthful climate and abundance of good food produced in the country. Santiago province registered during 1919 a death rate of children under one year of 37 per cent, nine thousand dying out of twenty-four thousand born. Many other towns registered high mortality rates, but inside this figure. Of these same 24,000 babies, 10,000 were born out of wedlock.

The two sets of figures no doubt have relation to each other, but it should be said at once that large

numbers of the children officially registered illegitimate are only officially so regarded. Civil marriages only are recognised by Chilean law, and if this ceremony is omitted the couple are officially unmarried although a priest may have united them.

In the country districts, distances are far and marriage fees no light matter to an agricultural population; many stories are told of young couples making a long journey to the nearest office where a wedding may be performed, finding it shut, and returning to set up house without being able to make another attempt at matrimony. The clergy are accused, perhaps without sufficient reason, of setting their faces against the civil marriage, and there was certainly a period in Chile, when the laws were first enforced, when devout children of the Church who refused to go through the official form were forbidden the religious ceremony, and marriages amongst the more obstinate circles practically ceased.

With regard to mortality, no explanation can excuse the loss of so large a part of the precious life blood of the country. One of the reasons is certainly to be looked for in the economic independence of many women in Chile. The woman wage-earner, of whom there is a larger number than in most Latin-American countries, is not always disposed to risk permanent association with an unsatisfactory mate — for divorce is scarcely known in Chile; and where no special social disability results, she prefers freedom. The whole question is one in which the future of Chile is concerned, and attracting the attention of thoughtful Chileans, has called for better housing regulations and schemes for the education of young mothers in infant care. A group of the admirable Club de Señoras, the characteristically Chilean association of wealthy, force-

ful and intellectual women of Santiago, is working towards the solution of a serious social problem.

Through the force of economic circumstance, the question of the employment of women is not one which is likely to be reconsidered in Chile.

Large groups of men are drawn to isolated camps in the copper and nitrate fields, and there is a resulting tendency for women in the other regions to take up work in factories, public services, etc.

It was the War of the Pacific that brought women into the employ of the street-car companies in Valparaiso and Santiago, for with the men absent in the army there were gaps in the ranks of workers. When the men returned their female supplanters refused to give up their berths, and remained victors. One feels sympathy with their spirited attitude, and, despite the unlovely dress imposed by the German tramway owners in early days (which includes the apron of a *hausfrau*) they make a generally good impression. It is doubtful whether such work is well suited to women; the hours are long — the old (now altered) time schedule kept certain women at work as conductors for fourteen hours a day — and the strain is plainly great upon feminine endurance.

Employment in the Chilean post-offices is not within the same category, but one becomes in South America so well accustomed to the general and graceful habit of service to women that a certain mental adjustment is required before one becomes inured to receiving service from them. If the far-famed Chilean politeness, a genial flame of nation-wide brightness, suffers an occasional eclipse, it is almost invariably due to the widespread employment of women.

PROVINCES AND POPULATION OF CHILE

Province	*Departments*	*Area in Sq. Kilometres*	*Population, Census of December, 1920*
Tacna	Tacna, Arica, Tarata	23,306	38,902
Tarapacá	Tarapacá, Pisagua	43,220	100,533
Antofagasta	Antofagasta, Tocopilla, Taltal	120,183	172,330
Atacama	Copiapó, Chañaral, Freirina, Vallenar	79,531	48,413
Coquimbo	La Serena, Elqui, Ovalle, Coquimbo, Combarbalá, Illapel	36,509	160,256
Aconcagua	San Felipe, Petorca, Putaendo, La Ligua, Los Andes	14,000	116,914
Valparaiso	Valparaiso, Quillota, Limache, Casablanca	4,598	320,398
Santiago	Santiago, La Victoria, Melipilla, San Antonio	15,260	685,358
O'Higgins	Rancagua, Cachapoal, Maipo	5,617	118,591
Colchagua	San Fernando, Caupolicán	9,973	166,342
Curicó	Curicó, Santa Cruz, Vichuquén	7,885	108,148
Talca	Talca, Lontué, Curepto	10,006	133,957

Province	*Departments*	*Area in Sq. Kilometres*	*Population, Census of December, 1920*
Maule	Cauquenes, Constitución, Chanco, Itatá	7,281	113,231
Linares	Linares, Loncomilla, Parral	10,279	119,284
Ñuble	Chillán, San Carlos, Bulnes, Yungay	9,050	170,425
Concepción	Concepción, Coelemu, Talcahuano, Puchacai, Lautaro, Rere	8,579	247,611
Arauco	Lebu, Arauco, Cañete	5,668	60,233
Bio-Bio	La Laja, Nascimiento, Mulchen	13,863	107,072
Malleco	Angol, Collipulli, Traiguén, Mariluán	8,555	121,429
Cautín	Temuco, Imperial, Llaima	16,524	193,628
Valdivia	Valdivia, Villarica, La Unión, Rio Bueno	23,285	175,141
Llanquihue	Llanquihue, Osorno, Carelmapu	90,066	137,206
Chiloé	Ancud, Quinchao, Castro	18,074	110,331
Territory of Magallanes		169,251	28,960
Total Chilean Territory		750,572	3,754,723

CHILEAN TERMS

Aji: small red peppers, highly aromatic, grown in the northerly regions; used extensively in Chilean cooking.

Alerce: a tall conifer of South Chile; fine lumber. *Alerzal*, a wood of *alerce* trees.

Algarroba: the sweet pod of the minosa-like Algarrobo tree (North).

Algarrobo: (al carob, Arabic), term applied by Spanish to small thorny tree bearing pods used as cattle fodder (North).

Antofagastino: native of Antofagasta.

Arenal: sand desert, sand-laden wind.

Atacameño: native of Atacama.

Avellano: small tree (Central and South) yielding the avellana, a soft-shelled nut resembling the hazel.

Bolas: throwing weapon used by mounted cattlemen or hunters; long pliable rope or hide thong with heavy weights at either end, flung in such a manner that it enwraps and twists about the legs of the animal pursued.

Boldo: a small tree yielding the drug *boldaina.*

Boquete: a mountain pass.

Brasero: deep dish or bowl, usually made of copper or silver, filled with charcoal and heated for cooking purposes or to warm a room.

Butre: smallest wild bamboo.

Cajón: a gap in the high mountains.

Caliche: strata containing nitrate of soda.

Camanchaca: fog or mist over the northern plains.

Cancha: depot (for ores, North); gun-park; tennis-court.

Candeal: hard brown wheat of the southerly provinces.

Canelo: sweet-smelling small tree (Central Chile), the "South American cinnamon."

Capacho: bag used for carrying ore, made of hide.

Capataz: foreman of workers.

Carbonado: a Chilean soup.

Cardón: applied to various thistles and especially to the big blue-flowered *Cynara cardunculus*, growing through Central and South Chile, but the term is also used for many spiny plants and leaves, for the wild artichoke and the thorny leaves of the Puya.

Cateo: the search for a mine.

Cazuela: thick stew, made with chicken, rice, potatos, aji, etc.
Chacolí: country wine, lightly fermented.
Chacra: a small cultivated plot of land.
Chagual: applied generally to *Puya chilensis* or *Puya coarctata*, growing freely from the sea border to Andean slopes in all Central Chile: the tall spike of blue, or in other varieties yellow flowers is the "chagual," while the spiny leaf is called "cardón" and the big thorns used as knitting-needles; the flowers are gathered for their honey.
Chaucha: twenty centavo piece.
Chañar: small tree (North), yielding date-like fruit. *Chañaral*, group of chañar trees.
Charqui: dried meat ("jerked" beef).
Charquican: Chilean dish made with charqui.
Chicha: heavy liquor made from grapes or apples; formerly made from wild berries by Indians of Chile.
Chileno (a): native of Chile.
Chillehueque: Araucanian name for the Guanaco.
Chilote: native of Chiloé.
Chinchilla: small fur-bearing rodent, today scarce and valuable.
Chingana: wattled booths set up at fairs for the assembly of musicians and dancers.
Choapino: saddle-cloth, woven of thick black-dyed wool (South).
Choclo: maize.
Cholo: a Peruvian. Cf. *Godo*, a Spaniard; *Gabacho*, Frenchman.
Chonta: palm growing on Más a Tierra island (Juan Fernandez group), yielding a fine wood of which walking sticks and canes are made, prized for the bright yellow and black pattern of the wood. The young head of the palm is cooked and eaten as a "cabbage."
Choros: large mussels found off Chilean coast, eaten in great quantities.
Chuño: arrowroot; or frozen and dried potatoes.
Chuso: a stupid fellow.
Cochayuyo: sea-weed, stewed in the south for soup, like *luche*.
Coihue, Coigüe: large tree (South), yielding hardwood and a red dye.
Colihue: wild bamboo. *Colihual*, bamboo thicket.
Condor: giant vulture (Sarcoramphus) of the Andes, ringed with white about the neck. Appears on Chilean coat-of-arms together with the native deer *huemul*. Araucanian name, *manqui*.
Congrio: a Chilean fish, generally liked; as also is the *corbina*, *robalo* and delicate *pejerey*.
Copihue: wild vine with a large, rosy bell. The national flower of Chile.
Coquimbano (a): native of Coquimbo.

Cueca: a popular soup.
Cueca, or *sama-cueca:* the Chilean national dance.
Culén (*Cytisus Arboreus*): prophylactic against witchcraft: leaves dried to make a medicinal tea and gum from stalks; well known as a vermifuge.
Cupilca: thick liquid or thin paste made with toasted and powdered wheat or maize and mixed with chicha or chacolí.
Curado: "half seas over."
Curanto: Indian dish of meat and vegetables, originally cooked in a stone-lined hole in the ground.
Cuyano: a native of the Argentine. Properly, applied to one born in the old province of Cuyo, formerly including the then Chilean provinces of Mendoza, San Juan and San Luis, but used familiarly of any one born in Argentina.
Despacho: shop or store on an estate or mine where goods are sold to employés.
Empanada: a paté, filled with chopped meat, onions, gravy, etc., and served hot.
Estrada: raised bench generally built across the end of a living room, used in colonial days as a seat for all the ladies of the family.
Fernandecino (a): native of the Juan Fernandez group of islands.
Floripondio: large white pendant flowers of the *Datura arborea,* growing as a fairly large tree in Chile. Infusions yield the *huanto,* a drugging drink used in regions of Quechua influence by witch-doctors to obtain insensibility and visions; *huanto* is similar in effect to the *natema* of Amazonian headwaters; *caapi* of Eastern Ecuador, and *ayahuasca* of Peru.
Fundo: a general farm. *Fundo de rulo,* a non-irrigated farm.
Futre: a pretentious person; in copper mines, a ghost or imp.
Garúa: fine rain, like a "Scotch mist" (North).
Guachuchero: a liquor-smuggler (mining regions).
Guagua: a baby (Araucanian Indian).
Guaira, guairachina: little smelters built on hilltop to catch the breeze.
Gualcacho: (Araucanian) plant yielding a small native grain similar to but more delicate than maize.
Gualhue: (Araucanian) damp ground, usually near a river, suitable for maize cultivation.
Guanaco: ruminant quadruped, still found in considerable numbers in the wild mountainous regions, all the way from the Bolivian border to Tierra del Fuego. Rugs and coverings made of the thick tawny hair, and the flesh eaten by Indians. In Ch. slang, a "guanaco" is a country bumpkin, a "hayseed."
Guaso, huaso: a cow-boy (Central Chile).

Guemul, huemul: the native deer of Chilean woodland.
hacer-se Sueco: to be unintelligible.
Huacho: properly, a motherless calf, but applied to any waif.
Huasca: a whip: originally applied to a supple creeper or liana of the forests, used as a cord or thong.
Humita: maize paste.
Inquilino: farm-worker on a Chilean estate, on special conditions. Usually given free house, land for cultivation, rations, small wages, and use of implements.
Invernado: wintering-place for cattle.
Litre: a tree used for fuel. Leaves poisonous, affecting persons in the tree's shade.
Llareta (*Lareta acaulis*): umbelliferous plant of low growth, spreading to an enormous size like a giant mushroom: grows in uplands of Tacna and Antofagasta, and is cut, dried on lower slopes, and brought down to inhabited regions to serve as fuel.
Luche: sea-weed used for making stews.
Lumo: a large tree supplying good timber.
Machi: medicine-woman of the Araucanians.
Maiten: tree with white wood. Leaves infused to obtain a febrifuge.
Mampato: the small Chilean pony.
Manco: properly, a one-armed man, but applied to broken-down horses.
Manta: a finely-woven poncho, often of alpaca or vicuna wool. *Manto*, black shawl worn by women when attending church services.
Mineral: a mineral reef or group of mines.
Molle: small tree with sweet-scented flowers and medicinal berries, formerly used by Indians for making chicha.
Paco: slang term for a policeman.
Palqui: plant yielding mauve or yellow flowers: ashes used in soap-making.
Pampa: a plain. *Pampas salitreras*, nitrate fields.
Panqui or Pangui (*Gunnera peltata*): plant with large rhubarb-like leaves, yielding a black dye and tannin. Grows in great quantities upon the islands of Juan Fernandez. *Pangal*, a mass of Pangui plants.
Penquisto: native of Penco: applied to inhabitants of Concepción City, the former Penco, or of Concepción province.
Pirquén: system by which the miner (pirquenero) works a vein on his own account, paying a royalty on production.
Politiquero: a professional politician: used derogatively.
Porotos: beans.
Porteño: native of "the port": usually, of Valparaiso.
Pudu: the miniature deer of South Chile.
Pulpería: store at a mine or nitrate oficina.

Puno: mountain sickness due to rarefied air: more commonly called *soroche* in Peru and Bolivia.

Puntarrense: native of Punta Arenas.

Puya (Puya chilensis, formerly listed as Pourretia coarctata): group of plants common in Chile, belonging to the genus Bromeliacrae, different varieties bearing light or dark blue or yellow flowers arranged in a huge spike; large orange stamens. The spiny leaves form a thick rosette at the base, in a form similar to that of the related pineapple. Feature of landscape in Central Chile, on spurs of hills. The light pith of the mature stem of the tall flower-spike, more buoyant than cork, is used for fishing floats and for sharpening razors.

Quelghen: the Chilean native strawberry, remains white when ripe, very sweet.

Quila: the small climbing bamboo of the South.

Quillay: a tree yielding a saponaceous bark much used in Chile.

Quintral: a beautiful scarlet-blossomed parasite upon poplar and other trees.

Quisco (*Cereus quisco*)*:* columnar cactus of Central and northerly Chile, called "torch thistle"; thorns used as needles; grows 12 to 18 ft.

Raule: a fine timber tree with red wood.

Roble: properly, oak, but applied to the Chilean beeches (South).

Roto: a "ragged man," originally: now applied to any worker.

Salitre: nitrate of soda.

Santiaguino (a): native of Santiago.

Siutico: "low-class" person; same meaning as *mediopelo.*

Soroche: See *Puno.*

Tajamar: wall or bank built to restrain the flood of sea or river; that of the Mapocho river a famous promenade in Santiago.

Templados: people in love; same meaning as *encamotados.*

Ulmo: drink made of parched and ground corn or maize (Indian).

Valdiviano: a native of Valdivia; also name of a vegetable soup.

Ventisqueros: glaciers; frequently driven by wind into frozen snow pinnacles, commonly called in Chile "nieves penitentes."

Williwaw: a squall in Magellanic territory (Scots).

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